

State of Alaska

Teachers' Retirement System

Actuarial Valuation
Report
As of June 30, 2018

August 2019

BUCK



August 9, 2019

State of Alaska
The Alaska Retirement Management Board
The Department of Revenue, Treasury Division
The Department of Administration, Division of Retirement and Benefits
P.O. Box 110203
Juneau, AK 99811-0203

Certification of Actuarial Valuation

Dear Members of The Alaska Retirement Management Board, The Department of Revenue and The Department of Administration:

This report summarizes the annual actuarial valuation results of the State of Alaska Teachers' Retirement System (TRS) as of June 30, 2018 performed by Buck Global, LLC (Buck).

The actuarial valuation is based on financial information provided in the financial statements audited by KPMG LLP, member data provided by the Division of Retirement and Benefits, and medical enrollment data provided by the healthcare claims administrator (Aetna), as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2018. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities and other factors under TRS were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Buck is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of TRS as of June 30, 2018.

TRS is funded by Employer, State, and Member Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board) as required by Alaska state statutes. The funding objective for TRS is to pay required contributions that remain level as a percent of total TRS compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the Unfunded Actuarial Accrued Liability (UAAL) as a level percentage of total TRS compensation over a closed 25-year period as required by Alaska state statutes. The closed 25-year period was originally established effective June 30, 2014. Effective June 30, 2018, the Board adopted a layered UAAL amortization method: Layer #1 equals the sum of (i) the UAAL at June 30, 2018 based on the 2017 valuation, plus (ii) the FY18 experience gain/loss. Layer #1 is amortized over the remainder of the 25-year closed period that was established in 2014¹. Layer #2 equals the change in UAAL at June 30, 2018 due to the experience study and EGWP implementation. Layer #2 is amortized over a separate closed 25-year period starting in 2018. Future layers will be created each year based on the change in UAAL occurring that year, and will be amortized over separate closed 25-year periods. The UAAL amortization continues to be on a level percent of pay basis. The compensation used to determine required contributions is the total compensation of all active members in TRS, including those hired after July 1, 2006 who are members of the Defined Contribution Retirement (DCR) Plan. This objective is currently being met and is projected to continue to be met. Absent future gains/losses, actuarially determined contributions are expected to

¹ Layer #1 is referred to as "initial amount" in Section 1.2.

remain level as a percent of pay and the overall funded status is expected to increase to 100% after 25 years.

The Board and staff of the State of Alaska may use this report for the review of the operations of TRS. Use of this report, for any other purpose or by anyone other than the Board or staff of the State of Alaska may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, you should ask Buck to review any statement you wish to make on the results contained in this report. Buck will not accept any liability for any such statement made without the review by Buck.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. In particular, retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. An analysis of the potential range of such future differences is beyond the scope of this valuation.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the plan. The actuary performs an analysis of plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2013 to June 30, 2017. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2018 valuation to better reflect expected future experience. Based on our annual analysis of recent claims experience, changes were made to the per capita claim cost rates effective June 30, 2018 to better reflect expected future healthcare experience. Based on recent experience, the healthcare cost trend assumptions were also updated. A summary of the actuarial assumptions and methods used in this actuarial valuation is shown in Sections 6.2 and 6.3.

Governmental Accounting Standards Board (GASB) Statement No. 67 (GASB 67) was effective for TRS beginning with fiscal year ending June 30, 2014, and Statement No. 74 (GASB 74) was effective for TRS beginning with fiscal year ending June 30, 2017. Separate GASB 67 and GASB 74 reports as of June 30, 2018 have been prepared. Section 3 of this report contains accounting information previously disclosed under GASB 25 for fiscal years 2007 through 2013 and accounting information previously disclosed under GASB 43 for fiscal years 2007 through 2016. We have also prepared the member data tables shown in Section 5 of this report for the Statistical Section of the CAFR, and the summary of actuarial assumptions, solvency test, and analysis of financial experience for the Actuarial Section of the CAFR. Please see our separate GASB 67 and GASB 74 reports for other information needed for the CAFR.

This report was prepared under my supervision and in accordance with all applicable Actuarial Standards of Practice. I am a Fellow of the Society of Actuaries, an Enrolled Actuary, a Fellow of the Conference of Consulting Actuaries and a Member of the American Academy of Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

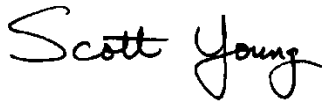
I am available to discuss this report with you at your convenience. I can be reached at 602-803-6174.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "D. J. Kershner".

David J. Kershner, FSA, EA, MAAA, FCA
Principal
Buck

The undersigned actuary is responsible for all assumptions related to the average annual per capita health claims cost and the health care cost trend rates, and hereby affirms his qualification to render opinions in such matters in accordance with the Qualification Standards of the American Academy of Actuaries.

A handwritten signature in black ink, appearing to read "Scott Young".

Scott Young, FSA, EA, MAAA
Director
Buck

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Executive Summary

Overview

The State of Alaska Teachers' Retirement System (TRS) provides pension and postemployment healthcare benefits to teachers and other eligible participants. The Commissioner of the Department of Administration is responsible for administering the plan. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the plan. This report presents the results of the actuarial valuation of TRS as of the valuation date of June 30, 2018.

Purpose

An actuarial valuation is performed on the plan annually as of the end of the fiscal year. The main purposes of the actuarial valuation detailed in this report are:

1. To determine the Employer/State contribution necessary to meet the Board's funding policy for the plan;
2. To disclose the funding assets and liability measures as of the valuation date;
3. To review the current funded status of the plan and assess the funded status as an appropriate measure for determining future actuarially determined contributions;
4. To compare actual and expected experience under the plan during the last fiscal year; and
5. To report trends in contributions, assets, liabilities, and funded status over the last several years.

The actuarial valuation provides a "snapshot" of the funded position of TRS based on the plan provisions, membership data, assets, and actuarial methods and assumptions as of the valuation date.

Actuarial projections are also performed to provide a long-term view of the expected future funded status and contribution patterns (see Section 4).

Retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements.

Funded Status

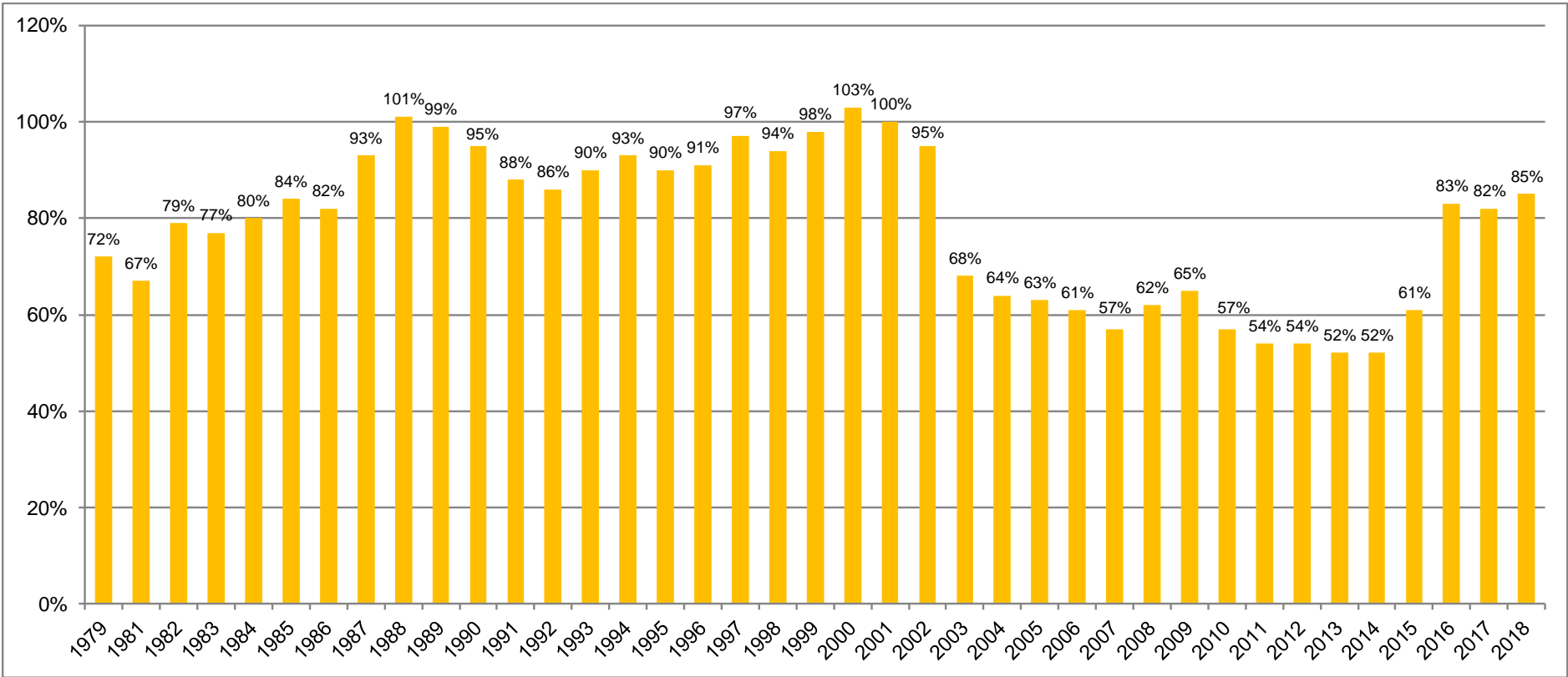
Where presented, references to “funded ratio” and “unfunded actuarial accrued liability” typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

Funded Status as of June 30 (\$'s in 000's)		2017	2018
Pension			
a. Actuarial Accrued Liability		\$ 7,217,525	\$ 7,276,290
b. Valuation Assets		<u>5,476,835</u>	<u>5,541,600</u>
c. Unfunded Actuarial Accrued Liability, (a) – (b)		\$ 1,740,690	\$ 1,734,690
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)		75.9%	76.2%
e. Fair Value of Assets		\$ 5,312,295	\$ 5,472,727
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)		73.6%	75.2%
Healthcare			
a. Actuarial Accrued Liability		\$ 2,927,093	\$ 2,684,150
b. Valuation Assets		<u>2,836,802</u>	<u>2,898,709</u>
c. Unfunded Actuarial Accrued Liability, (a) – (b)		\$ 90,291	\$ (214,559)
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)		96.9%	108.0%
e. Fair Value of Assets		\$ 2,757,631	\$ 2,870,134
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)		94.2%	106.9%
Total			
a. Actuarial Accrued Liability		\$ 10,144,618	\$ 9,960,440
b. Valuation Assets		<u>8,313,637</u>	<u>8,440,309</u>
c. Unfunded Actuarial Accrued Liability, (a) – (b)		\$ 1,830,981	\$ 1,520,131
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)		82.0%	84.7%
e. Fair Value of Assets		\$ 8,069,926	\$ 8,342,861
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)		79.5%	83.8%

The funded status of the plan (on an Actuarial Value of Assets basis) increased from June 30, 2017 to June 30, 2018. This increase was the net impact of various items, as described in more detail on the following pages.

The funded status for healthcare benefits is not necessarily an appropriate measure to confirm that assets are sufficient to settle health plan obligations because there are no available financial instruments for purchase. Future experience is likely to vary from assumptions so there is a potential for future healthcare actuarial gains and losses.

TRS Funded Ratio History (Based on Valuation Assets)



1. Investment Experience

The actuarial asset value was reinitialized to equal fair value of assets as of June 30, 2014. Beginning in FY15, the asset valuation method recognizes 20% of the investment gain or loss each year, for a period of five years. The FY18 investment return based on fair value of assets was approximately 8.2% compared to the expected investment return of 8.00% (net of investment and administrative expenses of approximately 0.16%). This resulted in a market asset gain of approximately \$23 million. Due to the recognition of investment gains and losses over a 5-year period, the FY18 investment return based on actuarial value of assets was approximately 6.2%, which resulted in an actuarial asset loss of approximately \$143 million.

2. Salary Increases

Salary increases for continuing active members during FY18 were less than expected based on the valuation assumptions, resulting in a liability gain of approximately \$41 million.

3. Demographic Experience

Section 5 provides statistics on active and inactive participants. The number of active participants decreased 7.4% from 4,772 at June 30, 2017 to 4,418 at June 30, 2018 due to active members exiting the plan during the year (due to retirement, termination, death and disability) and the closure of the plan to new entrants as of July 1, 2006. The average age of active participants increased from 50.86 to 51.13 and average credited service increased from 18.12 to 18.62 years.

The number of benefit recipients increased 2.3% from 12,983 to 13,277, and their average age increased from 70.36 to 70.78. The number of vested terminated participants decreased from 876 to 797. Their average age increased from 50.82 to 51.01.

The overall effect of the demographic experience during FY18 was an actuarial gain of approximately \$4.1 million (pension) and an actuarial gain of approximately \$29.3¹ million (healthcare).

4. COLA / PRPA Experience

The cost-of-living increases (COLA) and postretirement pension adjustments (PRPA) for benefit recipients during FY18 were less than expected based on the valuation assumptions, resulting in a liability gain of approximately \$81 million.

5. Medical Claims Experience and Assumptions

As described in Section 6.2, recent medical claims experience and changes in healthcare enrollment data provided to us for the June 30, 2018 valuation generated an actuarial gain of approximately \$146 million (net of the \$10 million loss due to the Cadillac Tax). The assumption regarding which participants will be eligible for Medicare Part B only was updated, which generated an actuarial gain of approximately \$23 million.

6. Changes in Methods Since the Prior Valuation

Effective June 30, 2018, the amortization of the UAAL was changed as described in Section 6.2. As part of the experience study (see item #7), the actuarial cost method for retiree healthcare benefits was changed from the Entry Age Level Dollar method to the Entry Age Level Percent of Pay method. There were no other changes in actuarial methods since the prior valuation.

¹ Includes the effect of changes in dependent coverage elections.

7. Changes in Assumptions Since the Prior Valuation

Effective for the June 30, 2018 valuation, the Board adopted changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience analysis performed on the population experience from July 1, 2013 to June 30, 2017. The changes in assumptions/methods were adopted by the Board during the January 2019 Board meeting. The new assumptions/methods increased the Actuarial Accrued Liability as of June 30, 2018 by approximately \$14 million (pension) and \$81 million (healthcare). Healthcare claim costs are updated annually as described in Section 6.2.

8. Changes in Benefit Provisions Since the Prior Valuation

There have been no changes in the TRS benefit provisions since the prior valuation. However, an Employer Group Waiver Plan (EGWP) became effective as of January 1, 2019. This arrangement replaced the Retiree Drug Subsidy under Medicare Part D and resulted in larger projected subsidies to offset the cost of prescription drug coverage. This change, which is further described in Section 6.1, decreased the healthcare Actuarial Accrued Liability as of June 30, 2018 by approximately \$248 million.

Comparative Summary of Key Actuarial Valuation Results

Pension Employer/State Contribution Rates for Fiscal Year	2020	2021
a. Normal Cost Rate Net of Member Contributions	3.09%	2.53%
b. Past Service Rate	<u>17.62%</u>	<u>17.99%</u>
c. Total Employer/State Contribution Rate, (a) + (b) ¹	20.71%	20.52%
Healthcare Employer/State Contribution Rates for Fiscal Year	2020	2021
a. Normal Cost Rate	2.05%	3.40%
b. Past Service Rate	<u>1.86%</u>	<u>(1.50)%</u>
c. Total Employer/State Contribution Rate, (a) + (b), not less than (a) ¹	3.91%	3.40%
Total Employer/State Contribution Rates for Fiscal Year	2020	2021
a. Normal Cost Rate Net of Member Contributions	5.14%	5.93%
b. Past Service Rate	<u>19.48%</u>	<u>17.99%</u>
c. Total Employer/State Contribution Rate, (a) + (b) ¹	24.62%	23.92%
d. Board Adopted Total Employer/State Contribution Rate	24.62%	TBD
e. Defined Contribution Retirement (DCR) Rate Paid by Employers	<u>5.85%</u>	<u>6.13%</u>
f. Board Adopted Total Rate, Including DCR Rate Paid by Employers, (d) + (e)	30.47%	TBD

Contribution rates are based on total (DB and DCR) payroll. The contribution rates shown above for FY21 are estimated assuming no actuarial gains/losses during FY19 and FY20. Actual FY21 contribution rates will be adopted reflecting FY19 asset experience.

Contribution rates include Employer contribution rates as limited by state statute, and include the additional State contribution required under SB 125.

¹ Beginning with the June 30, 2014 valuation, contribution rates for FY17 and beyond are determined using new methodology in accordance with 2014 legislation under HB 385 and SB 119, 2014 Alaska Laws, which changed the amortization methodology to a closed 25-year period as a level percentage of pay, and eliminated the time lag on the contribution rate calculation by using a 2-year "roll-forward" approach assuming 0% population growth. Investment gains and losses are recognized over a 5-year period beginning in FY15. Beginning with the June 30, 2018 valuation, the UAAL amortization was changed as described in Section 6.2.

Summary of Actuarial Accrued Liability Gain/(Loss) and Other Changes During the Year

The following table summarizes the sources of change in the total Employer/State contribution rate as of June 30, 2017 and June 30, 2018 based on DB and DCR payroll combined:

	Pension	Healthcare	Total
1. Total Employer/State contribution rate as of June 30, 2017	19.40%	3.40%	22.80%
2. Change due to:			
a. Health claims experience	N/A	(1.58)%	(1.58)%
b. Salary increases	(0.39)%	N/A	(0.39)%
c. Investment experience	0.91%	0.45%	1.36%
d. Demographic experience and miscellaneous ¹	0.37%	1.49%	1.86%
e. FY18 Contribution shortfall/(excess)	(0.03)%	0.05%	0.02%
f. Assumption changes	(0.32)%	0.24%	(0.08)%
g. Total change, (a) + (b) + (c) + (d) + (e) + (f)	0.54%	0.65%	1.19%
3. Total Employer/State contribution rate as of June 30, 2018, (1) + (2)(g)	19.94%	4.05%	23.99%

The following table shows the gain/(loss) on actuarial accrued liability as of June 30, 2018 (\$'s in 000's):

	Pension	Healthcare	Total
Retirement Experience	\$ 6,125	\$ 13,627	\$ 19,752
Termination Experience	(11,283)	(2,501)	(13,784)
Active Mortality Experience	1,725	(552)	1,173
Inactive Mortality Experience	(91)	(260)	(351)
Disability Experience	(543)	259	(284)
Rehires	3,114	(146)	2,968
Salary Increases	41,455	N/A	41,455
COLA	1,065	N/A	1,065
PRPA	79,754	N/A	79,754
Dependent Coverage Elections	N/A	18,765	18,765
Medical Claims Experience	N/A	156,549	156,549
Cadillac Tax	N/A	(10,195)	(10,195)
Modified Part B Only Assumption	N/A	23,321	23,321
Miscellaneous ²	3,790	(6,683)	(2,893)
Total	\$ 125,111	\$ 192,184	\$ 317,295

Other items that increased/(decreased) the actuarial accrued liability as of June 30, 2018 are shown below (\$'s in 000's):

	Pension	Healthcare	Total
EGWP Implementation	\$ N/A	\$ (247,660)	\$ (247,660)
Experience Study Assumptions/Methods	<u>14,346</u>	<u>81,386³</u>	<u>95,732</u>
Total	\$ 14,346	\$ (166,274)	\$ (151,928)

¹ Includes the effects of census data changes between the two valuations.

² This category includes the effects of various data changes that are typical when new census data is received for the annual valuation, the effects of differences between expected and actual benefit payments, and other items that do not fit neatly into any of the other categories.

³ Includes increase of \$74.2 million for new demographic/economic assumptions, increase of \$76.6 million for updated trend rates, and decrease of \$69.4 million for change in method from level dollar to level percent of pay.

The rehire gain/(loss) amount shown on the previous page is the difference between the increase in Actuarial Accrued Liability at June 30, 2018 due to rehires during the most recent plan year and the load that was added to the June 30, 2017 Normal Cost based on the rehire load assumption used in the June 30, 2017 valuation. The development of the FY18 rehire gain/(loss) amount is shown in the table below (\$'s in 000's):

	Pension	Healthcare	Total
1. Increase in Actuarial Accrued Liability at June 30, 2018 due to Rehires	\$ 7,834	\$ 2,132	\$ 9,966
2. June 30, 2017 Normal Cost Rehire Load, with interest to June 30, 2018	\$ 10,948	\$ 1,986	\$ 12,934
3. Rehire Gain/(Loss), (2) – (1)	\$ 3,114	\$ (146)	\$ 2,968

Section 1: Actuarial Funding Results

Section 1.1: Actuarial Liabilities and Normal Cost (\$'s in 000's)

As of June 30, 2018	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
Active Members		
Retirement Benefits	\$ 2,028,726	\$ 1,819,593
Termination Benefits	41,768	16,266
Disability Benefits	2,969	(1,421)
Death Benefits	14,308	11,843
Return of Contributions	2,511	(41,826)
Medical and Prescription Drug Benefits	1,090,486	910,658
Medicare Part D Subsidy	(119,684)	(100,841)
Indebtedness	<u>(30,583)</u>	<u>(30,583)</u>
Subtotal	\$ 3,030,501	\$ 2,583,689
Inactive Members		
Not Vested	\$ 39,656	\$ 39,656
Vested Terminations		
- Retirement Benefits	113,716	113,716
- Medical and Prescription Drug Benefits	197,502	197,502
- Medicare Part D Subsidy	(21,565)	(21,565)
- Indebtedness	(4,448)	(4,448)
Retirees & Beneficiaries		
- Retirement Benefits	5,353,494	5,353,494
- Medical and Prescription Drug Benefits	1,970,386	1,970,386
- Medicare Part D Subsidy	<u>(271,990)</u>	<u>(271,990)</u>
Subtotal	\$ 7,376,751	\$ 7,376,751
Total	\$ 10,407,252	\$ 9,960,440
Total Pension	\$ 7,562,117	\$ 7,276,290
Total Medical, Net of Part D Subsidy	\$ 2,845,135	\$ 2,684,150
Total Medical, Gross of Part D Subsidy	\$ 3,258,374	\$ 3,078,546

As of June 30, 2018	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
By Tier		
Tier 1		
- Pension	\$ 4,692,745	\$ 4,677,362
- Medical, Net of Part D Subsidy	1,353,528	1,346,230
Tier 2		
- Pension	2,869,372	2,598,928
- Medical, Net of Part D Subsidy	<u>1,491,607</u>	<u>1,337,920</u>
Total	\$ 10,407,252	\$ 9,960,440

As of June 30, 2018	Normal Cost
Active Members	
Retirement Benefits	\$ 34,525
Termination Benefits	4,131
Disability Benefits	711
Death Benefits	430
Return of Contributions	7,341
Medical and Prescription Drug Benefits	28,226
Medicare Part D Subsidy	(3,012)
Rehire Assumption (Pension)	7,339
Rehire Assumption (Medical)	3,033
Administrative Expenses (Pension)	2,970
Administrative Expenses (Medical)	<u>1,652</u>
Subtotal	\$ 87,346
Total	\$ 87,346
Total Pension	\$ 57,447
Total Medical, Net of Part D Subsidy	\$ 29,899
Total Medical, Gross of Part D Subsidy	\$ 32,911
By Tier	
Tier 1	
- Pension	\$ 4,987
- Medical, Net of Part D Subsidy	2,209
Tier 2	
- Pension	52,460
- Medical, Net of Part D Subsidy	<u>27,690</u>
Total	\$ 87,346

Section 1.2: Actuarial Contributions as of June 30, 2018 (\$'s in 000's)

Normal Cost Rate	Pension	Healthcare	Total
1. Total Normal Cost	\$ 57,447	\$ 29,899	\$ 87,346
2. DB Rate Payroll Projected for FY19	392,609	392,609	392,609
3. DCR Rate Payroll Projected for FY19	346,044	346,044	346,044
4. Total Rate Payroll Projected for FY19	738,653	738,653	738,653
5. Normal Cost Rate			
a. Based on DB Rate Payroll, (1) ÷ (2)	14.63%	7.62%	22.25%
b. Based on Total Rate Payroll, (1) ÷ (4)	7.78%	4.05%	11.83%
6. Average Member Contribution Rate ¹	4.60%	0.00%	4.60%
7. Employer Normal Cost Rate, (5)(b) – (6)	3.18%	4.05%	7.23%

Past Service Rate	Pension	Healthcare	Total
1. Actuarial Accrued Liability	\$ 7,276,290	\$ 2,684,150	\$ 9,960,440
2. Valuation Assets	<u>5,541,600</u>	<u>2,898,709</u>	<u>8,440,309</u>
3. Unfunded Actuarial Accrued Liability, (1) – (2)	\$ 1,734,690	\$ (214,559)	\$ 1,520,131
4. Funded Ratio, (2) ÷ (1)	76.2%	108.0%	84.7%
5. Past Service Cost Amortization Payment	123,798	(14,186)	109,612
6. Total Rate Payroll Projected for FY19	738,653	738,653	738,653
7. Past Service Rate, (5) ÷ (6)	16.76%	(1.92)%	14.84%
Total Employer/State Contribution Rate, not less than Normal Cost Rate	19.94%	4.05%	23.99%
Normal Cost Rate by Tier (Total Employer and Member) ²			
Tier 1	15.13%	6.70%	21.83%
Tier 2	14.59%	7.70%	22.29%
Maturity Ratio	75.62%	69.83%	74.06%

¹ Assumes no member contributions from members in the DCR plan, 9.65% contributions for Tier 1 members who elected supplemental coverage, and 8.65% for the remaining members.

² Rate determined considering the pay for members of the plan in each tier. DCR payroll is excluded from these calculations.

Schedule of Past Service Cost Amortizations – Pension (\$'s in 000's)

Layer	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Left	Initial	Outstanding	
Initial Amount	06/30/2018	21	\$ 1,720,344	\$ 1,720,344	\$ 122,872
Experience Study	06/30/2018	25	14,346	14,346	926
Total				\$ 1,734,690	\$ 123,798

Schedule of Past Service Cost Amortizations – Healthcare (\$'s in 000's)

Layer	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Left	Initial	Outstanding	
Initial Amount	06/30/2018	21	\$ (48,285)	\$ (48,285)	\$ (3,449)
Experience Study and EGWP	06/30/2018	25	(166,274)	(166,274)	(10,737)
Total				\$ (214,559)	\$ (14,186)

Schedule of Past Service Cost Amortizations – Total (\$'s in 000's)

Layer	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Left	Initial	Outstanding	
Initial Amount	06/30/2018	21	\$ 1,672,059	\$ 1,672,059	\$ 119,423
Experience Study and EGWP	06/30/2018	25	(151,928)	(151,928)	(9,811)
Total				\$ 1,520,131	\$ 109,612

Section 1.3: Roll Forward Contribution Rate Calculation for FY21 (\$ in 000's)

	Pension	Healthcare	Total
1. Liability Roll Forward			
a. Actuarial Accrued Liability as of June 30, 2018	\$ 7,276,290	\$ 2,684,150	\$ 9,960,440
b. Normal Cost	54,477	28,245	82,722
c. Interest on (a) and (b) at 7.38%	541,011	200,175	741,186
d. Estimated Benefit Payments	(481,670)	(131,315)	(612,985)
e. Interest on (d) at 7.38%, adjusted for timing	(18,940)	(5,164)	(24,104)
f. Expected Actuarial Accrued Liability as of June 30, 2019	\$ 7,371,168	\$ 2,776,091	\$ 10,147,259
g. Projected Normal Cost	49,867	26,202	76,069
h. Interest on (f) and (g) at 7.38%	547,672	206,809	754,481
i. Estimated Benefit Payments	(500,188)	(136,154)	(636,342)
j. Interest on (i) at 7.38%, adjusted for timing	(19,668)	(5,354)	(25,022)
k. Expected Actuarial Accrued Liability as of June 30, 2020	\$ 7,448,851	\$ 2,867,594	\$ 10,316,445
2. Asset Roll Forward			
a. Actuarial Value of Assets as of June 30, 2018	\$ 5,541,600	\$ 2,898,709	\$ 8,440,309
b. Interest on (a) at 7.38%	408,970	213,925	622,895
c. Employee Contributions	37,608	0	37,608
d. Employer Contributions	37,819	15,512	53,331
e. State Assistance Contributions	128,174	0	128,174
f. Interest on (c) – (e) at 7.38%, adjusted for timing*	11,379	562	11,941
g. Estimated Benefit Payments	(481,670)	(131,315)	(612,985)
h. AVA Adjustments	(87,750)	(43,090)	(130,840)
i. Interest on (g) at 7.38%, adjusted for timing	(18,940)	(5,164)	(24,104)
j. Expected Actuarial Value of Assets as of June 30, 2019	\$ 5,577,190	\$ 2,949,139	\$ 8,526,329
k. Interest on (j) at 7.38%	411,597	217,646	629,243
l. Employee Contributions	35,173	0	35,173
m. Employer Contributions	33,616	16,398	50,014
n. State Assistance Contributions**	141,129	0	141,129
o. Interest on (l) – (n) at 7.38%, adjusted for timing*	12,908	594	13,502
p. Estimated Benefit Payments	(500,188)	(136,154)	(636,342)
q. AVA Adjustments	(37,724)	(15,736)	(53,460)
r. Interest on (p) at 7.38%, adjusted for timing	(19,668)	(5,354)	(25,022)
s. Expected Actuarial Value of Assets as of June 30, 2020	\$ 5,654,033	\$ 3,026,533	\$ 8,680,566
3. Expected Unfunded Actuarial Accrued Liability as of June 30, 2020, 1(k) - 2(s)	\$ 1,794,818	\$ (158,939)	\$ 1,635,879

* Employee and Employer Contributions are paid throughout the year. State Assistance Contributions for FY19 were paid on August 1, 2018, and are assumed to be paid on July 1, 2019 for FY20.

** The FY20 State Assistance Contribution is expected to be contributed 100% to pension.

	Pension	Healthcare	Total
4. Expected Annual Rate Payroll for FY21			
a. Defined Benefit Members			\$ 333,858
b. Defined Contribution Retirement Members			419,776
c. Total Rate Payroll			\$ 753,634
5. Expected FY21 Contribution Rate Calculation			
a. Projected Normal Cost for FY21	\$ 47,947	\$ 25,622	\$ 73,569
b. Projected Normal Cost Rate for FY21	6.36%	3.40%	9.76%
c. Expected Member Contribution Rate for FY21	(3.83%)	0.00%	(3.83%)
d. Expected Employer Normal Cost Rate for FY21	2.53%	3.40%	5.93%
e. Expected Unfunded Liability as of June 30, 2020	\$ 1,794,818	\$ (158,939)	\$ 1,635,879
f. FY21 Layered Amortization of Expected Unfunded Liability	135,574	(11,268)	124,306
g. Expected Past Service Cost Contribution Rate for FY21	17.99%	(1.50)%	16.49%
h. Expected Total Contribution Rate for FY21, not less than the Normal Cost Rate	20.52%	3.40%	23.92%

The components of the expected FY21 amortization amounts are shown below (totals may not add due to rounding):

Expected FY21 Schedule of Past Service Cost Amortizations – Pension (\$'s in 000's)

Layer	Amortization Period		Balances		Beginning-of-Year Payment for FY21
	Date Created	Years Left at 6/30/2020	Initial	Outstanding at 6/30/2020	
Initial Amount	06/30/2018	19	\$ 1,720,344	\$ 1,706,391	\$ 129,723
Experience Study	06/30/2018	23	14,346	14,451	978
Expected (Gain)/Loss FY19	06/30/2019	24	64,202	64,489	4,260
Expected (Gain)/Loss FY20	06/30/2020	25	9,487	9,487	613
Total				\$ 1,794,818	\$ 135,574

Expected FY21 Schedule of Past Service Cost Amortizations – Healthcare (\$'s in 000's)

Layer	Amortization Period		Balances		Beginning-of-Year Payment for FY21
	Date Created	Years Left at 6/30/2020	Initial	Outstanding at 6/30/2020	
Initial Amount	06/30/2018	19	\$ (48,285)	\$ (47,893)	\$ (3,641)
Experience Study and EGWP	06/30/2018	23	(166,274)	(167,496)	(11,335)
Expected (Gain)/Loss FY19	06/30/2019	24	42,113	42,301	2,794
Expected (Gain)/Loss FY20	06/30/2020	25	14,149	14,149	914
Total				\$ (158,939)	\$ (11,268)

Expected FY21 Schedule of Past Service Cost Amortizations – Total (\$'s in 000's)

Layer	Amortization Period		Balances		Beginning-of-Year Payment for FY21
	Date Created	Years Left at 6/30/2020	Initial	Outstanding at 6/30/2020	
Initial Amount	06/30/2018	19	\$ 1,672,059	\$ 1,658,498	\$ 126,082
Experience Study and EGWP	06/30/2018	23	(151,928)	(153,045)	(10,357)
Expected (Gain)/Loss FY19	06/30/2019	24	106,315	106,790	7,054
Expected (Gain)/Loss FY20	06/30/2020	25	23,636	23,636	1,527
Total				\$ 1,635,879	\$ 124,306

Section 1.4: Actuarial Gain/(Loss) for FY18 (\$'s in 000's)

	Pension	Healthcare	Total
1. Expected Actuarial Accrued Liability			
a. Actuarial Accrued Liability, June 30, 2017	\$ 7,217,525	\$ 2,927,093	\$ 10,144,618
b. Normal Cost	64,961	19,541	84,502
c. Interest on (a) and (b) at 8.00%	582,599	235,731	818,330
d. Benefit Payments	(456,427)	(134,051)	(590,478)
e. Refund of Contributions	(2,085)	0	(2,085)
f. Interest on (d) and (e) at 8.00%, adjusted for timing	(19,518)	(5,706)	(25,224)
g. Experience Study Assumptions/Methods and EGWP	<u>14,346</u>	<u>(166,274)</u>	<u>(151,928)</u>
h. Expected Actuarial Accrued Liability as of June 30, 2018, (a) + (b) + (c) + (d) + (e) + (f) + (g)	\$ 7,401,401	\$ 2,876,334	\$ 10,277,735
2. Actual Actuarial Accrued Liability, June 30, 2018	<u>7,276,290</u>	<u>2,684,150</u>	<u>9,960,440</u>
3. Liability Gain/(Loss), (1)(h) – (2)	\$ 125,111	\$ 192,184	\$ 317,295
4. Expected Actuarial Asset Value			
a. Actuarial Asset Value, June 30, 2017	\$ 5,476,835	\$ 2,836,802	\$ 8,313,637
b. Interest on (a) at 8.00%	438,147	226,944	665,091
c. Employee Contributions	37,674	0	37,674
d. Employer Contributions	39,836	19,305	59,141
e. State Assistance Contributions	111,757	0	111,757
f. Medicare Part D Subsidy	0	1,894	1,894
g. Interest on (c), (d), (e) and (f) at 8.00%, adjusted for timing	11,210	832	12,042
h. Benefit Payments	(456,427)	(134,051)	(590,478)
i. Refund of Contributions	(2,085)	0	(2,085)
j. Interest on (h) and (i) at 8.00%, adjusted for timing	<u>(19,518)</u>	<u>(5,706)</u>	<u>(25,224)</u>
k. Expected Actuarial Asset Value, June 30, 2018, (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h) + (i) + (j)	\$ 5,637,429	\$ 2,946,020	\$ 8,583,449
5. Actuarial Asset Value, June 30, 2018	<u>5,541,600</u>	<u>2,898,709</u>	<u>8,440,309</u>
6. Actuarial Asset Gain/(Loss), (5) – (4)(k)	\$ (95,829)	\$ (47,311)	\$ (143,140)
7. Total Actuarial Gain/(Loss), (3) + (6)	\$ 29,282	\$ 144,873	\$ 174,155
8. Contribution Gain/(Loss)	\$ 2,782	\$ (5,688)	\$ (2,906)
9. FY18 Gain/(Loss), (7) + (8)	\$ 32,064	\$ 139,185	\$ 171,249

Section 1.5: Development of Change in Unfunded Liability During FY18 (\$'s in 000's)

	Pension	Healthcare	Total
1. 2017 Unfunded Liability	\$ 1,740,690	\$ 90,291	\$ 1,830,981
a. Interest on Unfunded Liability at 8.00%	139,255	7,224	146,479
b. Normal Cost	64,961	19,541	84,502
c. Employee Contributions	(37,674)	0	(37,674)
d. Employer Contributions	(39,836)	(19,305)	(59,141)
e. State Assistance Contributions	(111,757)	0	(111,757)
f. Medicare Part D Subsidy	0	(1,894)	(1,894)
g. Interest on (b) - (f) at 8.00%, adjusted for timing	(6,013)	731	(5,282)
h. Experience Study Assumptions/Methods and EGWP	<u>14,346</u>	<u>(166,274)</u>	<u>(151,928)</u>
i. Expected change in Unfunded Liability during FY18	\$ 23,282	\$ (159,977)	\$ (136,695)
2. Expected 2018 Unfunded Liability, (1) + (1)(i)	\$ 1,763,972	\$ (69,686)	\$ 1,694,286
a. Liability (gain)/loss during FY18	\$ (125,111)	\$ (192,184)	\$ (317,295)
b. Actuarial Assets (gain)/loss during FY18	<u>95,829</u>	<u>47,311</u>	<u>143,140</u>
c. Total actuarial (gain)/loss during FY18	\$ (29,282)	\$ (144,873)	\$ (174,155)
3. Actual 2018 Unfunded Liability, (2) + (2)(c)	\$ 1,734,690	\$ (214,559)	\$ 1,520,131

Section 1.6: Analysis of Financial Experience

Pension

Change in Employer/State Contribution Rate

Due to (Gains) and Losses in Actuarial Accrued Liabilities During the Last Five Fiscal Years
Resulting from Differences between Assumed Experience and Actual Experience

Type of (Gain) or Loss	Change in Employer/State Contribution Rate During Fiscal Year				
	2014	2015	2016	2017	2018
1. Health Claims	N/A	N/A	N/A	N/A	N/A
2. Salary Experience	(0.43)%	(0.34)%	(0.42)%	(0.39)%	(0.48)%
3. Investment Experience	(3.97)%	0.40%	1.36%	1.32%	1.10%
4. Demographic Experience and Miscellaneous	1.75%	(0.52)%	(0.98)%	(0.98)%	(0.94)%
5. Contribution Shortfall	<u>1.10%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>(0.09)%</u>	<u>(0.03)%</u>
6. (Gain) or Loss During Year from Experience, (1) + (2) + (3) + (4) + (5)	(1.55)%	(0.46)%	(0.04)%	(0.14)%	(0.35)%
7. Assumptions/Method Changes	(28.73)%	0.00%	2.73%	0.00%	0.16%
8. System Benefit Changes	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
9. Composite (Gain) or Loss During Year, (6) + (7) + (8)	(30.28)%	(0.46)%	2.69%	(0.14)%	(0.19)%
10. Beginning Total Employer/State Contribution Rate	<u>48.06%</u>	<u>17.78%</u>	<u>19.16%</u>	<u>20.86%</u>	<u>20.71%</u>
11. Ending Valuation Year Employer/State Contribution Rate, (9) + (10)	17.78%	17.32%	21.85%	20.72%	20.52%
12. Fiscal Year Rates					
a. Fiscal Year Employer/State Contribution Rate	17.78%	19.16%	20.86%	20.71%	20.52%*
b. Fiscal Year for Which Rate Applies	FY17	FY18	FY19	FY20	FY21

* Expected. Actual rate to be determined.

Healthcare

Change in Employer/State Contribution Rate

Due to (Gains) and Losses in Actuarial Accrued Liabilities During the Last Five Fiscal Years
Resulting from Differences between Assumed Experience and Actual Experience

Type of (Gain) or Loss	Change in Employer/State Contribution Rate During Fiscal Year				
	2014	2015	2016	2017	2018
1. Health Claims ¹	(8.59)%	(4.07)%	(0.43)%	(2.75)%	(1.69)%
2. Salary Experience	N/A	N/A	N/A	N/A	N/A
3. Investment Experience	(2.34)%	0.22%	0.71%	0.67%	0.55%
4. Demographic Experience and Miscellaneous	N/A	N/A	N/A	(0.53)%	2.29%
5. Contribution Shortfall	<u>0.14%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>(0.13)%</u>	<u>0.07%</u>
6. (Gain) or Loss During Year from Experience, (1) + (2) + (3) + (4) + (5)	(10.79)%	(3.85)%	0.28%	(2.74)%	1.22%
7. Assumptions/Method Changes and EGWP	(4.77)%	0.00%	0.46%	4.04%	(1.73)%
8. System Benefit Changes	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
9. Composite (Gain) or Loss During Year, (6) + (7) + (8)	(15.56)%	(3.85)%	0.74%	1.30%	(0.51)%
10. Beginning Total Employer/State Contribution Rate	<u>21.18%</u>	<u>5.62%</u>	<u>2.59%</u>	<u>2.70%</u>	<u>3.91%</u>
11. Ending Valuation Year Employer/State Contribution Rate, (9) + (10)	5.62%	1.77%	3.33%	4.00%	3.40%
12. Fiscal Year Rates					
a. Fiscal Year Employer/State Contribution Rate	5.62%	2.59%	2.70%	3.91%	3.40%*
b. Fiscal Year for Which Rate Applies	FY17	FY18	FY19	FY20	FY21

* Expected. Actual rate to be determined.

¹ Prior to 2017, the health claims percentages include the effects of healthcare demographic experience gains/losses.

Total
Change in Employer/State Contribution Rate
Due to (Gains) and Losses in Actuarial Accrued Liabilities During the Last Five Fiscal Years
Resulting from Differences between Assumed Experience and Actual Experience

Type of (Gain) or Loss	Change in Employer/State Contribution Rate During Fiscal Year				
	2014	2015	2016	2017	2018
1. Health Claims ¹	(8.59)%	(4.07)%	(0.43)%	(2.75)%	(1.69)%
2. Salary Experience	(0.43)%	(0.34)%	(0.42)%	(0.39)%	(0.48)%
3. Investment Experience	(6.31)%	0.62%	2.07%	1.99%	1.65%
4. Demographic Experience and Miscellaneous	1.75%	(0.52)%	(0.98)%	(1.51)%	1.35%
5. Contribution Shortfall	<u>1.24%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>(0.22)%</u>	<u>0.04%</u>
6. (Gain) or Loss During Year from Experience, (1) + (2) + (3) + (4) + (5)	(12.34)%	(4.31)%	0.24%	(2.88)%	0.87%
7. Assumptions/Method Changes and EGWP	(33.50)%	0.00%	3.19%	4.04%	(1.57)%
8. System Benefit Changes	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
9. Composite (Gain) or Loss During Year, (6) + (7) + (8)	(45.84)%	(4.31)%	3.43%	1.16%	(0.70)%
10. Beginning Total Employer/State Contribution Rate	<u>69.24%</u>	<u>23.40%</u>	<u>21.75%</u>	<u>23.56%</u>	<u>24.62%</u>
11. Ending Valuation Year Employer/State Contribution Rate, (9) + (10)	23.40%	19.09%	25.18%	24.72%	23.92%
12. Fiscal Year Rates					
a. Fiscal Year Employer/State Contribution Rate	23.40%	21.75%	23.56%	24.62%	23.92%*
b. Fiscal Year for Which Rate Applies	FY17	FY18	FY19	FY20	FY21

* Expected. Actual rate to be determined.

¹ Prior to 2017, the health claims percentages include the effects of healthcare demographic experience gains/losses.

Section 1.7: History of Unfunded Liability and Funded Ratio (\$'s in 000's)

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Pct. of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2003	\$ 5,835,609	\$ 3,752,285	64.3%	\$ 2,083,324
June 30, 2004	\$ 6,123,600	\$ 3,845,370	62.8%	\$ 2,278,230
June 30, 2005	\$ 6,498,556	\$ 3,958,939	60.9%	\$ 2,539,617
June 30, 2006	\$ 7,229,851	\$ 4,141,700	57.3%	\$ 3,088,151
June 30, 2007	\$ 7,189,403	\$ 4,424,399	61.5%	\$ 2,765,004
June 30, 2008	\$ 7,619,178	\$ 4,936,976	64.8%	\$ 2,682,202
June 30, 2009	\$ 7,847,514	\$ 4,472,958	57.0%	\$ 3,374,556
June 30, 2010	\$ 8,847,788	\$ 4,739,128	53.6%	\$ 4,108,660
June 30, 2011	\$ 9,128,795	\$ 4,937,937	54.1%	\$ 4,190,858
June 30, 2012	\$ 9,346,444	\$ 4,869,154	52.1%	\$ 4,477,290
June 30, 2013	\$ 9,592,107	\$ 4,974,076	51.9%	\$ 4,618,031
June 30, 2014	\$ 9,841,032	\$ 6,019,274	61.2%	\$ 3,821,758
June 30, 2015	\$ 9,729,117	\$ 8,108,923	83.3%	\$ 1,620,194
June 30, 2016	\$ 9,907,624	\$ 8,200,391	82.8%	\$ 1,707,233
June 30, 2017	\$ 10,144,618	\$ 8,313,637	82.0%	\$ 1,830,981
June 30, 2018	\$ 9,960,440	\$ 8,440,309	84.7%	\$ 1,520,131

Section 2: Plan Assets

Section 2.1: Summary of Fair Value of Assets (\$'s in 000's)

As of June 30, 2018	Pension	Healthcare	Total Fair Value	Allocation Percent
Cash and Short-Term Investments				
Cash and Cash Equivalents	\$ 53,120	\$ 25,275	\$ 78,395	0.9%
Subtotal	\$ 53,120	\$ 25,275	\$ 78,395	0.9%
Fixed Income Investments				
Domestic Fixed Income Pool	\$ 679,336	\$ 358,751	\$ 1,038,087	12.4%
High Yield Pool	64	34	98	0.0%
Treasury Inflation Protection Pool	11,820	6,242	18,062	0.2%
Tactical Fixed Income Pool	<u>70,516</u>	<u>37,239</u>	<u>107,755</u>	<u>1.3%</u>
Subtotal	\$ 761,736	\$ 402,266	\$ 1,164,002	13.9%
Equity Investments				
Domestic Equity Pool	\$ 1,279,384	\$ 675,631	\$ 1,955,015	23.3%
International Equity Pool	1,014,414	535,703	1,550,117	18.5%
Private Equity Pool	504,739	266,548	771,287	9.2%
Emerging Markets Equity Pool	158,470	83,686	242,156	2.9%
Alternative Equity Strategies	<u>276,690</u>	<u>146,117</u>	<u>422,807</u>	<u>5.0%</u>
Subtotal	\$ 3,233,697	\$ 1,707,685	\$ 4,941,382	58.9%
Other Investments				
Real Estate Pool	\$ 387,276	\$ 204,532	\$ 591,808	7.1%
Other Investments Pool	644,630	340,424	985,054	11.8%
Absolute Return Pool	405,272	214,021	619,293	7.4%
Other Assets	<u>0</u>	<u>318</u>	<u>318</u>	<u>0.0%</u>
Subtotal	\$ 1,437,178	\$ 759,295	\$ 2,196,473	26.3%
Total Cash and Investments	\$ 5,485,731	\$ 2,894,521	\$ 8,380,252	100.0%
Net Accrued Receivables	<u>(13,004)</u>	<u>(24,387)</u>	<u>(37,391)</u>	
Net Assets	\$ 5,472,727	\$ 2,870,134	\$ 8,342,861	

Section 2.2: Changes in Fair Value of Assets During FY18 (\$'s in 000's)

Fiscal Year 2018	Pension	Healthcare	Total Fair Value
1. Fair Value of Assets, June 30, 2017	\$ 5,312,295	\$ 2,757,631	\$ 8,069,926
2. Additions:			
a. Employee Contributions	\$ 37,674	\$ 0	\$ 37,674
b. Employer Contributions	39,836	19,305	59,141
c. State Assistance Contributions	111,757	0	111,757
d. Interest and Dividend Income	92,788	48,625	141,413
e. Net Appreciation/(Depreciation) in Fair Value of Investments	342,565	177,662	520,227
f. Medicare Part D Subsidy	0	1,894	1,894
g. Other	<u>184</u>	<u>6,200</u>	<u>6,384</u>
h. Total Additions	\$ 624,804	\$ 253,686	\$ 878,490
3. Deductions:			
a. Medical Benefits	\$ 0	\$ 134,051	\$ 134,051
b. Retirement Benefits	456,427	0	456,427
c. Refunds of Contributions	2,085	0	2,085
d. Investment Expenses	2,810	1,467	4,277
e. Administrative Expenses	<u>3,050</u>	<u>5,665</u>	<u>8,715</u>
f. Total Deductions	\$ 464,372	\$ 141,183	\$ 605,555
4. Fair Value of Assets, June 30, 2018	\$ 5,472,727	\$ 2,870,134	\$ 8,342,861
Approximate Fair Value Investment Return Rate During FY18 Net of All Expenses	8.29%	8.10%	8.23%
Liquidity Factor	11.8	21.0	13.8

Section 2.3: Development of Actuarial Value of Assets (\$'s in 000's)

The actuarial value of assets was set equal to the fair value at June 30, 2014 and the 20% corridor was eliminated. Investment gains and losses after June 30, 2014 are recognized 20% per year over 5 years.

	Pension	Healthcare	Total
1. Deferral of Investment Gain/(Loss) for FY18			
a. Fair Value, June 30, 2017	\$ 5,312,295	\$ 2,757,631	\$ 8,069,926
b. Contributions	189,267	19,305	208,572
c. Medicare Part D Subsidy	0	1,894	1,894
d. Benefit Payments	458,512	134,051	592,563
e. Actual Investment Return (net of expenses)	429,677	225,355	655,032
f. Expected Return Rate	8.00%	8.00%	8.00%
g. Expected Return - Weighted for Timing	416,676	215,736	632,412
h. Investment Gain/(Loss) for the Year, (e) – (g)	13,001	9,619	22,620
2. Actuarial Value, June 30, 2018			
a. Fair Value, June 30, 2018	\$ 5,472,727	\$ 2,870,134	\$ 8,342,861
b. Deferred Investment Gain/(Loss)	(68,873)	(28,575)	(97,448)
c. Actuarial Value, June 30, 2018, (a) – (b)	\$ 5,541,600	\$ 2,898,709	\$ 8,440,309
3. Ratio of Actuarial Value of Assets to Fair Value of Assets	101.3%	101.0%	101.2%
4. Approximate Actuarial Value Investment Return Rate During FY18 Net of All Expenses	6.25%	6.06%	6.18%

The tables below show the development of gains/(losses) to be recognized in the current year (\$'s in 000's).

Pension				
Plan Year Ended	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years
6/30/2015	\$ (219,620)	\$ (131,772)	\$ (43,924)	\$ (43,924)
6/30/2016	(443,393)	(177,358)	(88,679)	(177,357)
6/30/2017	236,679	47,336	47,336	142,007
6/30/2018	<u>13,001</u>	<u>0</u>	<u>2,600</u>	<u>10,401</u>
Total	\$ (413,333)	\$ (261,794)	\$ (82,667)	\$ (68,873)

Healthcare				
Plan Year Ended	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years
6/30/2015	\$ (121,632)	\$ (72,978)	\$ (24,326)	\$ (24,328)
6/30/2016	(218,931)	(87,572)	(43,786)	(87,573)
6/30/2017	126,053	25,211	25,211	75,631
6/30/2018	<u>9,619</u>	<u>0</u>	<u>1,924</u>	<u>7,695</u>
Total	\$ (204,891)	\$ (135,339)	\$ (40,977)	\$ (28,575)

Total				
Plan Year Ended	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years
6/30/2015	\$ (341,252)	\$ (204,750)	\$ (68,250)	\$ (68,252)
6/30/2016	(662,324)	(264,930)	(132,465)	(264,930)
6/30/2017	362,732	72,547	72,547	217,638
6/30/2018	<u>22,620</u>	<u>0</u>	<u>4,524</u>	<u>18,096</u>
Total	\$ (618,224)	\$ (397,133)	\$ (123,644)	\$ (97,448)

Section 2.4: Historical Asset Rates of Return

Year Ending	Actuarial Value		Fair Value	
	Annual	Cumulative*	Annual	Cumulative*
June 30, 2005	9.1%	9.1%	8.5%	8.5%
June 30, 2006	9.6%	9.3%	11.4%	9.9%
June 30, 2007	11.9%	10.2%	18.5%	12.7%
June 30, 2008	10.2%	10.2%	(3.0)%	8.6%
June 30, 2009	(7.9)%	6.3%	(21.0)%	1.9%
June 30, 2010	8.1%	6.6%	10.6%	3.3%
June 30, 2011	6.9%	6.6%	20.5%	5.6%
June 30, 2012	0.7%	5.9%	0.2%	4.9%
June 30, 2013	3.7%	5.6%	12.2%	5.7%
June 30, 2014	22.7%	7.2%	18.2%	6.9%
June 30, 2015	7.2%	7.2%	3.2%	6.5%
June 30, 2016	5.1%	7.1%	(0.7)%	5.9%
June 30, 2017	5.6%	6.9%	12.9%	6.4%
June 30, 2018	6.2%	6.9%	8.2%	6.6%

* Cumulative since FYE June 30, 2005

Section 3: Accounting Information (GASB 25 and GASB 43)¹

Section 3.1: Historical Exhibits (\$'s in 000's)

Schedule of Employer Contributions

The exhibit below shows pension disclosure under GASB No. 25 for fiscal years ending 2007 through 2013.

Fiscal Year Ended June 30	Total Annual Required Contribution	Percentage Contributed		
		By Employer	By State	Total
2013	\$ 259,786	14.4%	75.8%	90.2%
2012	229,509	16.6%	68.6%	85.2%
2011	167,978	19.5%	65.1%	84.6%
2010	170,788	19.8%	58.8%	78.6%
2009	94,388	28.7%	110.6%	139.3%
2008	134,544	23.3%	82.7%	106.0%
2007	169,974	62.2%	0.00%	62.2%

¹ Pension figures for fiscal years after 2013 are contained in separate GASB 67 reports and postemployment healthcare figures for fiscal years after 2016 are contained in separate GASB 74 reports.

Schedule of Funding Progress (\$'s in 000's)

The exhibit below shows pension disclosure under GASB No. 25, prior to 2006.

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)	Annual Active Member Payroll	UAAL as a Percent of Annual Active Member Payroll
June 30, 2005	\$ 6,498,556	\$ 3,958,939	60.9%	\$ 2,539,617	\$ 535,837	474.0%
June 30, 2004 ²	6,123,600	3,845,370	62.8%	2,278,230	522,421	436.1%
June 30, 2003	5,835,609	3,752,285	64.3%	2,083,324	532,630	391.1%
June 30, 2002 ^{1 2 3}	5,411,642	3,689,036	68.2%	1,722,606	509,437	338.1%
June 30, 2001	4,603,147	4,372,229	95.0%	230,918	496,188	46.5%
June 30, 2000 ^{1 2 3}	4,198,868	4,184,015	99.6%	14,853	482,571	3.1%
June 30, 1999	3,720,954	3,815,633	102.5%	N/A	466,414	N/A
June 30, 1998	3,528,757	3,446,070	97.7%	82,687	469,433	17.6%
June 30, 1997	3,320,069	3,120,044	94.0%	200,025	466,455	42.9%

¹ Change in Asset Valuation Method

² Change of Assumptions

³ Change in Methods

Section 3.2: Postemployment Healthcare (\$'s in 000's)

The exhibit below shows postemployment healthcare disclosure without regard to the Medicare Part D subsidy under GASB No. 43 for fiscal years 2007 through 2016.

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)	Annual Active Member Payroll ¹	UAAL as a Percent of Annual Active Member Payroll
June 30, 2016 – 4.43%	\$ 4,898,395	\$ 2,836,802	57.9%	\$ 2,061,593	\$ 474,291	434.7%
June 30, 2015 – 4.31%	4,840,935	2,686,272	55.5%	2,154,663	503,163	428.2%
June 30, 2014 ² – 4.25%	5,373,322	2,248,135	41.8%	3,125,187	523,580	596.9%
June 30, 2013 – 5.08%	5,002,345	1,803,763	36.1%	3,198,582	550,044	581.5%
June 30, 2012 ² – 5.01%	5,046,942	1,674,160	33.2%	3,372,782	561,971	600.2%
June 30, 2011 – 7.08%	3,635,492	1,591,988	43.8%	2,043,504	584,068	349.9%
June 30, 2010 ² – 8.00%	3,076,388	1,479,260	48.1%	1,597,128	564,887	282.7%
June 30, 2009 – 4.50%	4,604,820	1,357,239	29.5%	3,247,581	557,026	583.0%
June 30, 2008 ² – 4.50%	4,648,055	1,266,890	27.3%	3,381,165	549,148	615.7%
June 30, 2007 – 4.50%	4,059,573	982,532	24.2%	3,077,041	554,245	552.2%

¹ Actual active member payroll has been based on information provided by KPMG, LLP.

² Change in assumptions.

Schedule of Employer Contributions (\$'s in 000's)

The exhibit below shows postemployment healthcare disclosure without regard to the Medicare Part D subsidy under GASB No. 43 for fiscal years ending 2007 through 2016.

Fiscal Year Ended June 30	Total Annual Required Contribution	Percentage Contributed		
		By Employer	By State	Total
2016	336,595	7.9%	11.8%	19.7%
2015	352,417	7.6%	100.1%	107.7%
2014	320,797	10.0%	35.6%	45.6%
2013	330,411	10.7%	33.3%	44.0%
2012	192,700	18.8%	46.6%	65.4%
2011	167,686	25.8%	51.5%	77.3%
2010*	312,922	13.6%	38.8%	52.4%
2009	164,171	28.7%	62.1%	90.8%
2008	185,271	23.6%	85.7%	109.3%
2007	76,879	62.2%	0.00%	62.2%

* The ARC and percentage contributed are based on Buck's calculation and do not match the CAFR. The percentage contributed in includes the legal settlement in FY10, net of fees, as well as the Medicare Part D subsidy contributed by the State to the Healthcare Fund.

The exhibit below shows the healthcare annual required contribution (ARC) as a percentage of pay for fiscal years 2008 through 2016.

ARC (% of Pay)			
Valuation Date	Fiscal Year	Healthcare	Healthcare Discount Rate
June 30, 2005	FY08	54.45%	4.50%
June 30, 2006	FY09	52.20%	4.50%
June 30, 2007	FY10	52.42%	4.50%
June 30, 2008	FY11	28.71%	8.25%
June 30, 2009	FY12	34.29%	7.08%
June 30, 2010*	FY13	60.07%	5.01%
June 30, 2011	FY14	61.27%	5.08%
June 30, 2012	FY15	70.04%	4.25%
June 30, 2013	FY16	70.97%	4.31%

* Change in discount rate assumptions effective June 30, 2010

GASB 67 accounting is effective beginning in FY14 and GASB 74 accounting is effective beginning in FY17. They are provided in separate reports.

GASB 43 ARC is based on DB salary only and a level dollar basis to determine normal cost and amortization of the unfunded liability. These amounts are converted to percentage of pay. DB salary is the same salary used for determination of employer contribution rates.

See Section 3.3 of prior years' actuarial valuation reports for Notes to Trend Data.

Section 3.3: Solvency Test (\$'s in 000's)

The exhibit below shows the pension Solvency Test for valuation dates June 30, 2005 through June 30, 2016.

Valuation Date	Pension Actuarial Accrued Liability (AAL)				Portion of AAL Covered by Assets		
	(1)	(2)	(3)	Pension Valuation Assets	(1)	(2)	(3)
	Active Member Contributions	Inactive Members	Active Members (Employer-Financed Portion)				
June 30, 2016	\$ 709,903	\$ 5,329,673	\$ 1,120,212	\$ 5,428,687	100.0%	88.5%	0.0%
June 30, 2015	714,422	5,192,935	1,144,367	5,422,651	100.0%	90.7%	0.0%
June 30, 2014 ^{1 2}	718,694	5,042,250	1,160,418	3,771,139	100.0%	60.5%	0.0%
June 30, 2013	726,139	4,726,282	1,137,132	3,170,313	100.0%	51.7%	0.0%
June 30, 2012	727,435	4,532,982	1,139,360	3,194,994	100.0%	54.4%	0.0%
June 30, 2011	717,819	4,352,035	1,126,250	3,345,949	100.0%	60.4%	0.0%
June 30, 2010 ¹	716,675	4,153,119	1,137,187	3,259,868	100.0%	61.2%	0.0%
June 30, 2009	692,105	3,815,020	956,862	3,115,719	100.0%	63.5%	0.0%
June 30, 2008	654,662	3,700,812	876,180	3,670,086	100.0%	81.5%	0.0%
June 30, 2007	638,420	3,567,894	837,134	3,441,867	100.0%	78.6%	0.0%
June 30, 2006 ^{1 2}	615,207	3,432,703	811,426	3,296,934	100.0%	78.1%	0.0%
June 30, 2005	589,169	3,200,339	545,077	3,184,976 ³	100.0%	81.1%	0.0%

¹ Change in Assumptions

² Change in Methods

³ The pension and postemployment healthcare valuation assets were allocated using a ratio of fair value of assets as of June 30, 2005.

The exhibit below shows the postemployment healthcare Solvency Test for valuation dates June 30, 2005 through June 30, 2016.

Valuation Date	Postemployment Healthcare Actuarial Accrued Liability (AAL)			Postemployment Healthcare Valuation Assets	Portion of AAL Covered by Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
	Active Member Contributions	Inactive Members	Active Members (Employer-Financed Portion)				
June 30, 2016	\$ 0	\$ 1,853,084	\$ 894,752	\$ 2,771,704	100.0%	100.0%	100.0%
June 30, 2015	0	1,870,987	806,406	2,686,272	100.0%	100.0%	100.0%
June 30, 2014 ^{1 2}	0	2,008,223	911,447	2,248,135	100.0%	100.0%	26.3%
June 30, 2013	0	2,012,114	990,440	1,803,763	100.0%	89.6%	0.0%
June 30, 2012	0	1,933,288	1,013,379	1,674,160	100.0%	86.6%	0.0%
June 30, 2011	0	1,879,564	1,053,127	1,591,988	100.0%	84.7%	0.0%
June 30, 2010 ¹	0	1,755,961	1,084,846	1,479,260	100.0%	84.2%	0.0%
June 30, 2009	0	1,477,788	905,739	1,357,239	100.0%	91.8%	0.0%
June 30, 2008 ¹	0	1,480,864	906,660	1,266,890	100.0%	85.6%	0.0%
June 30, 2007	0	1,344,131	801,824	982,532	100.0%	73.1%	0.0%
June 30, 2006 ^{1 2}	0	1,493,219	877,296	844,766	100.0%	56.6%	0.0%
June 30, 2005	0	1,493,837	670,134	773,963 ³	100.0%	51.8%	0.0%

Healthcare liabilities are calculated using the funding assumptions (i.e., funding investment return and net of Medicare Part D subsidy).

¹ Change in Assumptions

² Change in Methods

³ The pension and postemployment healthcare valuation assets were allocated using a ratio of fair value of assets as of June 30, 2005.

The exhibit below shows the combined pension and postemployment healthcare Solvency Test for valuation dates June 30, 2010 and before.

Valuation Date	Actuarial Accrued Liability (AAL)			Valuation Assets	Portion of AAL Covered by Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
	Active Member Contributions	Inactive Members	Active Members (Employer-Financed Portion)				
June 30, 2010 ¹	\$ 716,875	\$ 5,909,080	\$ 2,222,033	\$ 4,739,128	100.0%	68.1%	0.0%
June 30, 2009	692,105	5,292,808	1,862,601	4,472,958	100.0%	71.4%	0.0%
June 30, 2008 ¹	654,662	5,181,676	1,782,840	4,936,976	100.0%	82.6%	0.0%
June 30, 2007	638,420	4,912,025	1,638,958	4,424,399	100.0%	77.1%	0.0%
June 30, 2006 ^{1 2}	615,207	4,925,922	1,688,722	4,141,700	100.0%	71.6%	0.0%
June 30, 2005	589,169	4,694,176	1,215,211	3,958,939	100.0%	71.8%	0.0%
June 30, 2004 ¹	569,435	4,423,036	1,131,129	3,845,370	100.0%	74.1%	0.0%
June 30, 2003	548,947	4,105,445	1,181,217	3,752,285	100.0%	78.0%	0.0%
June 30, 2002 ^{1 2 3}	523,142	3,755,882	1,132,618	3,689,036	100.0%	84.3%	0.0%
June 30, 2001	533,752	3,213,431	855,964	4,372,229	100.0%	100.0%	73.0%

Healthcare liabilities are calculated using the funding assumptions (i.e., funding investment return and net of Medicare Part D subsidy).

¹ Change in Assumptions

² Change in Methods

³ Change in Asset Valuation Method

Section 4: Projections

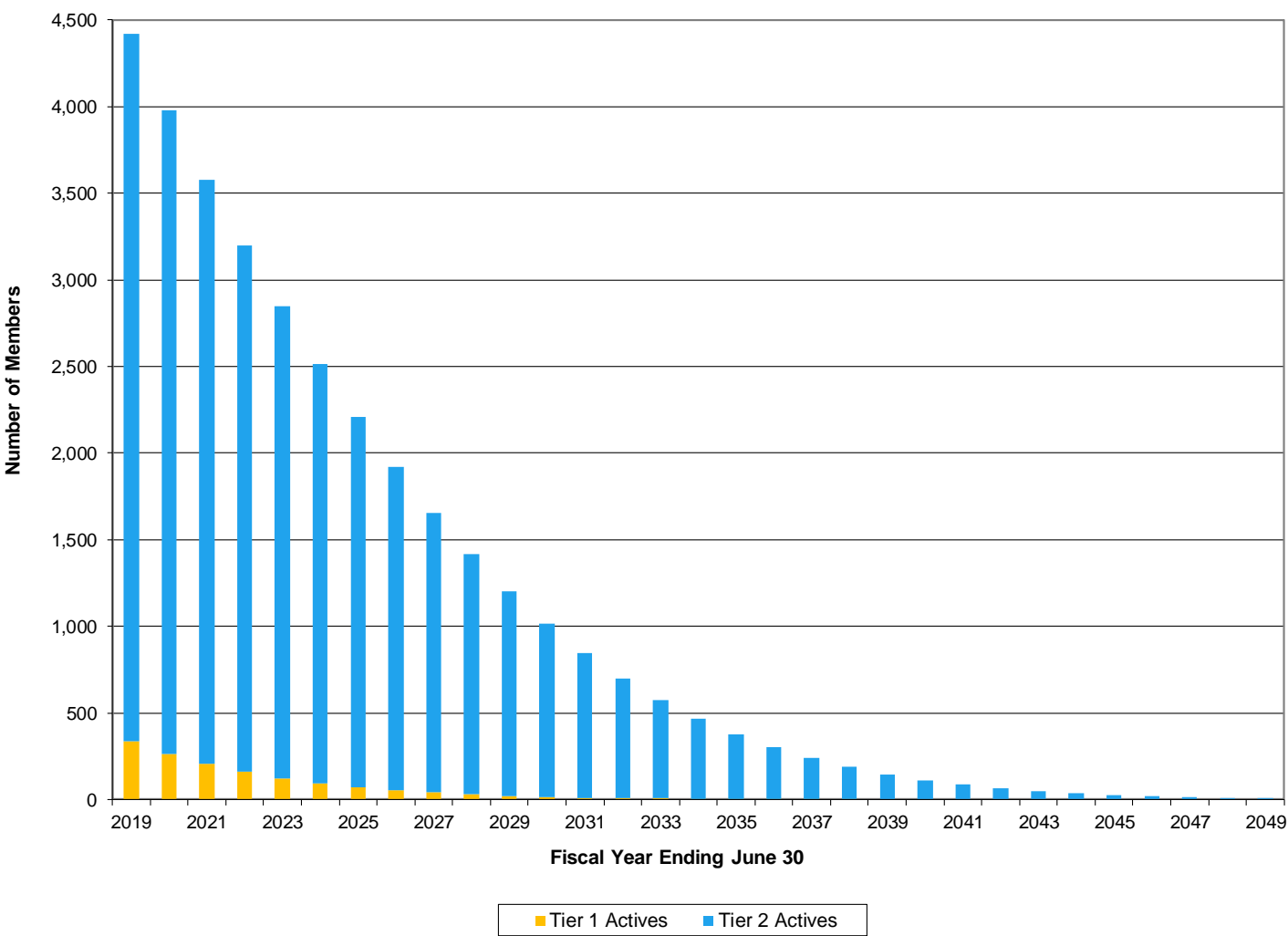
Section 4.1: Projection Assumptions and Methods

Key Assumptions

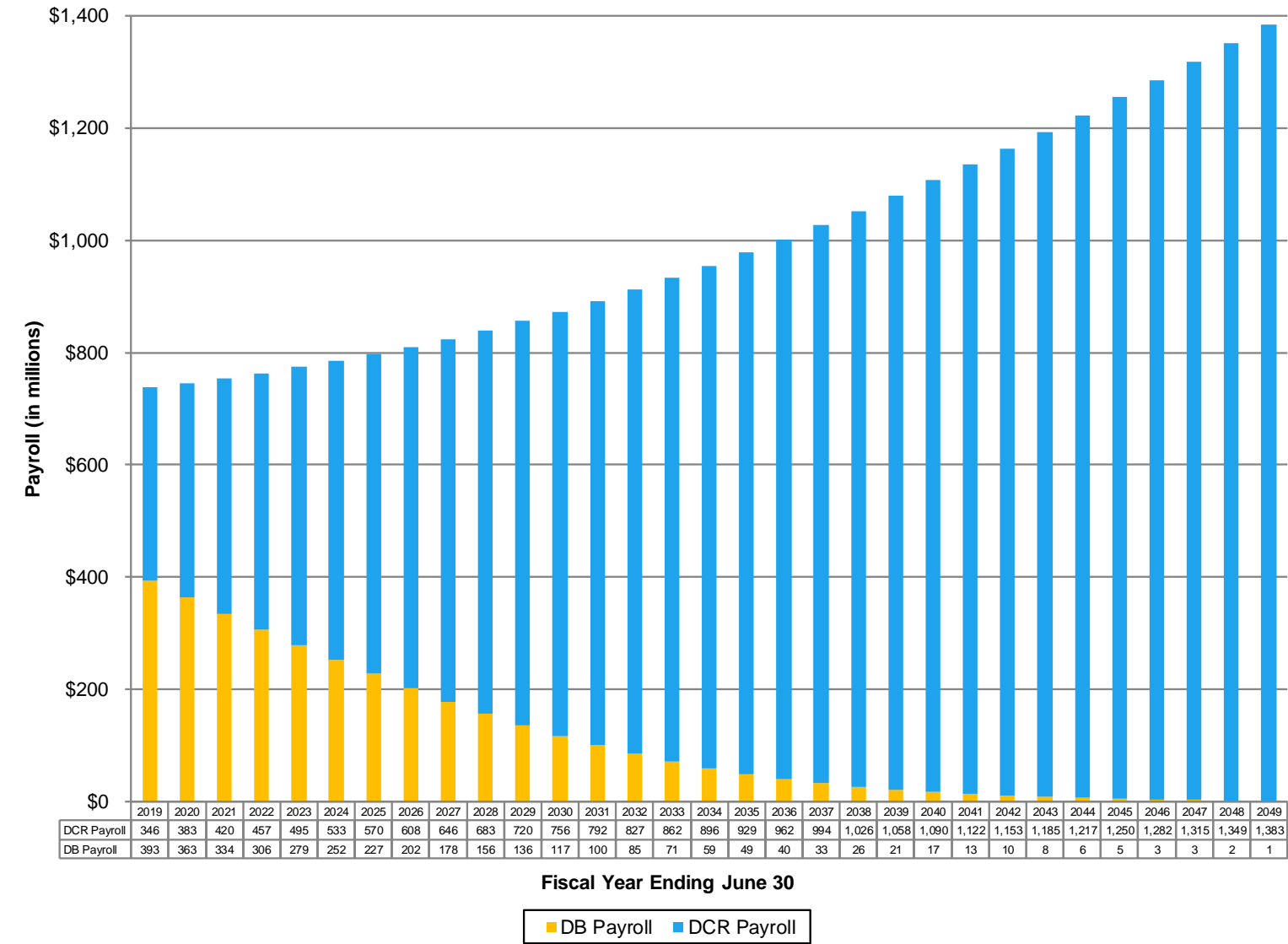
- 7.38% investment return (net of investment expenses) on the Fair Value of Assets in all future years.
- The Actuarial Value of Assets was re-initialized to Fair Value as of June 30, 2014. The Actuarial Value of Assets after June 30, 2014 reflects the deferred gains and losses generated by the smoothing method. The current deferred amount is recognized in the first four years of the projections.
- Actuarial assumptions and methods as described in Section 6. No actuarial gains/losses are assumed after June 30, 2108.
- The actuarially calculated contribution rate using a two-year roll-forward approach is adopted each year.
- Projections assume a 0% increase in the total active member population. All new members are expected to enter the DCR plan.
- Contribution rates are determined as a percent of total DB and DCR payroll, combined.
- The DCR contribution rate determined as of June 30, 2018 is assumed to remain constant in all future years.
- The active rehire assumption shown in Section 6 is assumed to grade to zero on a uniform basis over 20 years.

Section 4.2: Membership Projection

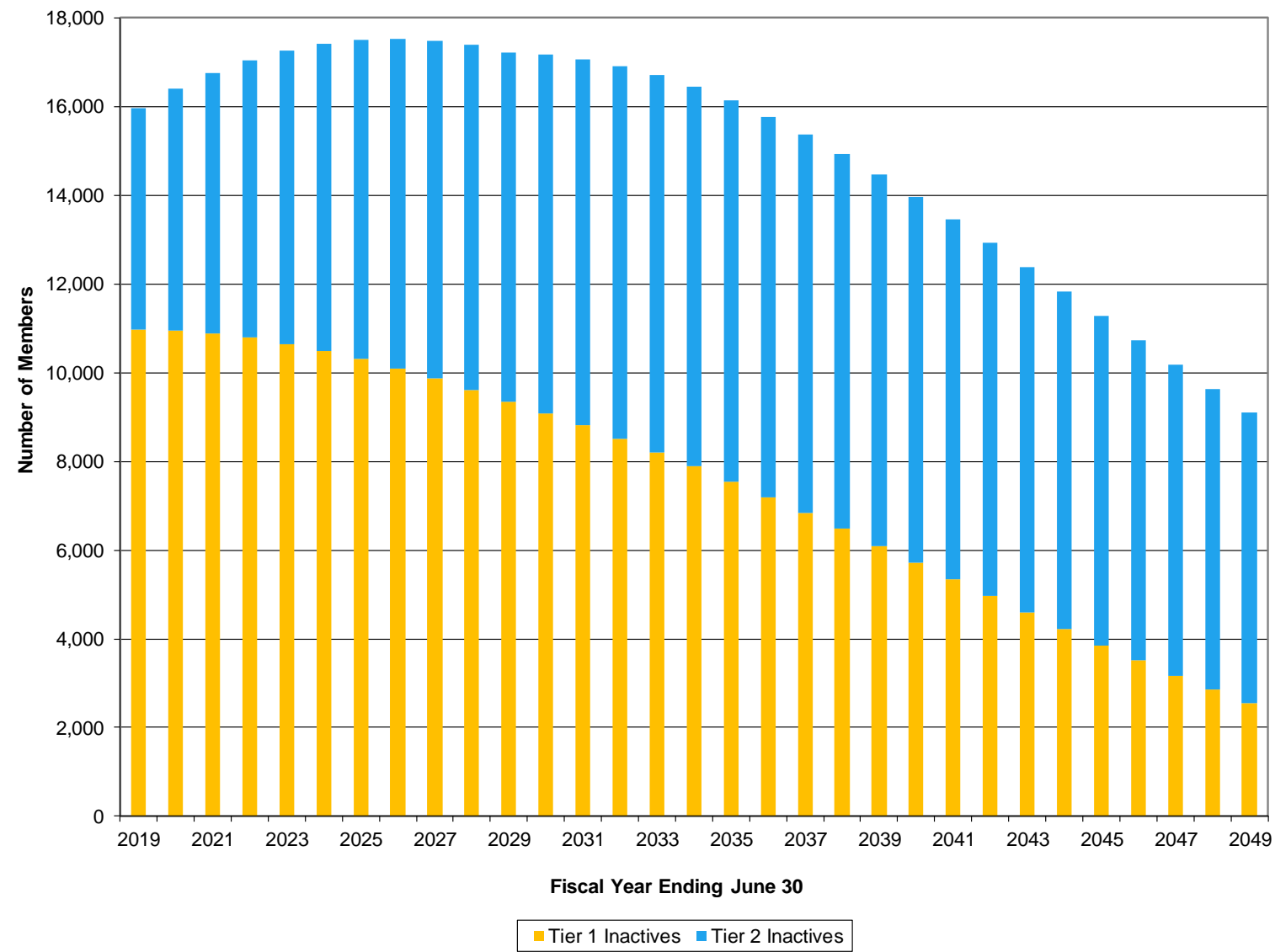
Projected Active Member Count



Projected DB and DCR Payroll

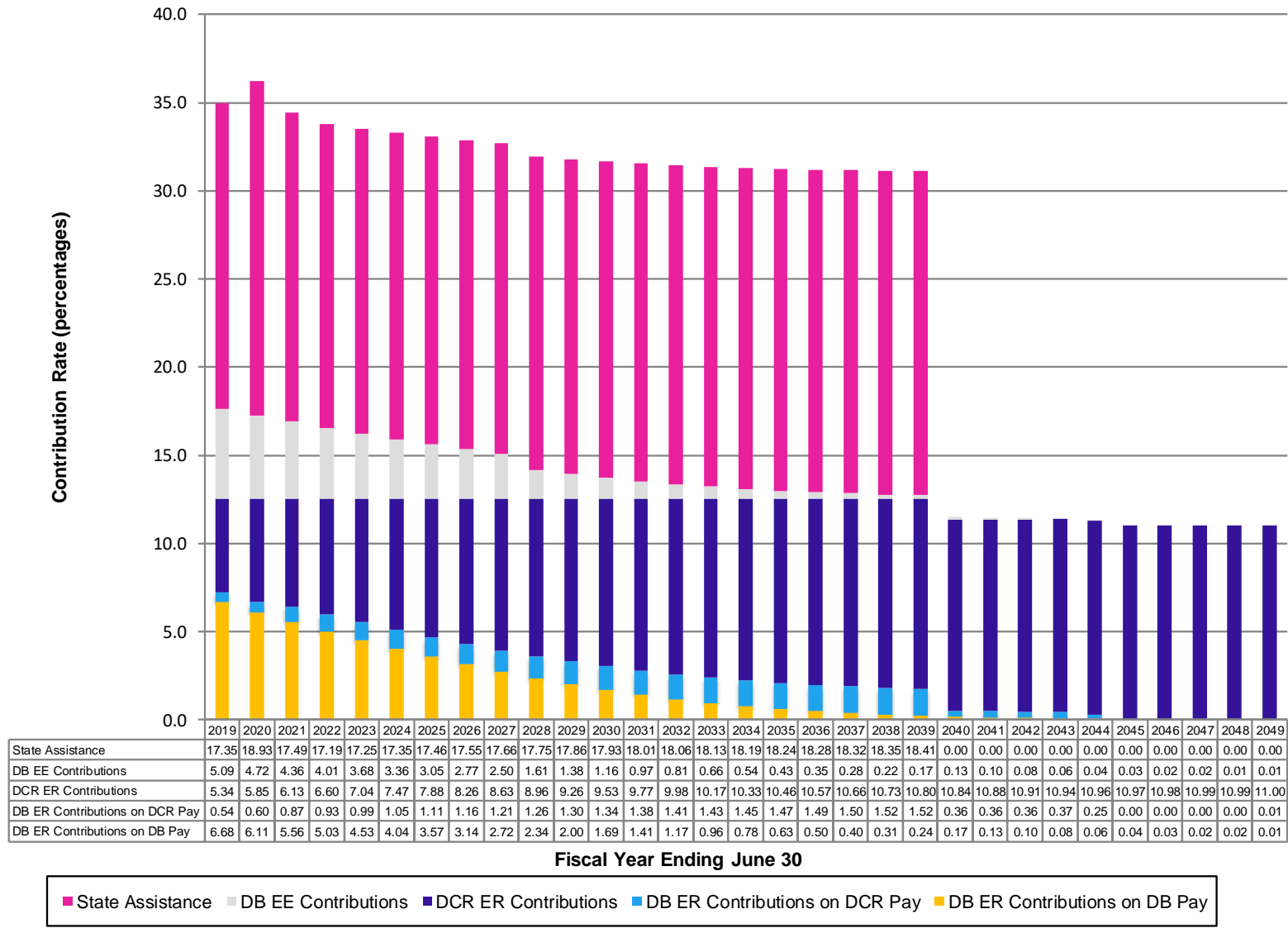


Projected Inactive Member Count

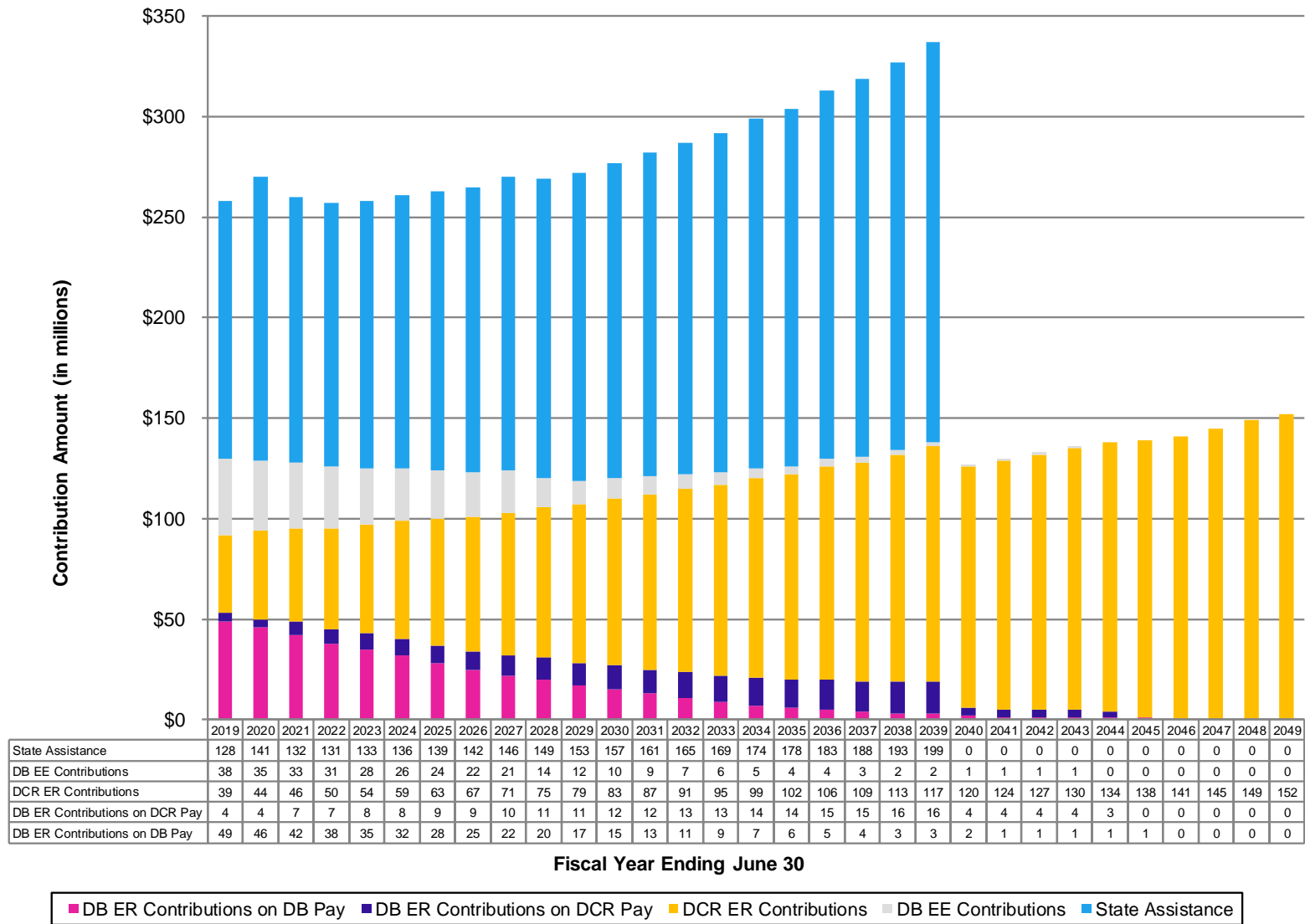


Section 4.3: Projected Employer/State Contribution Rates

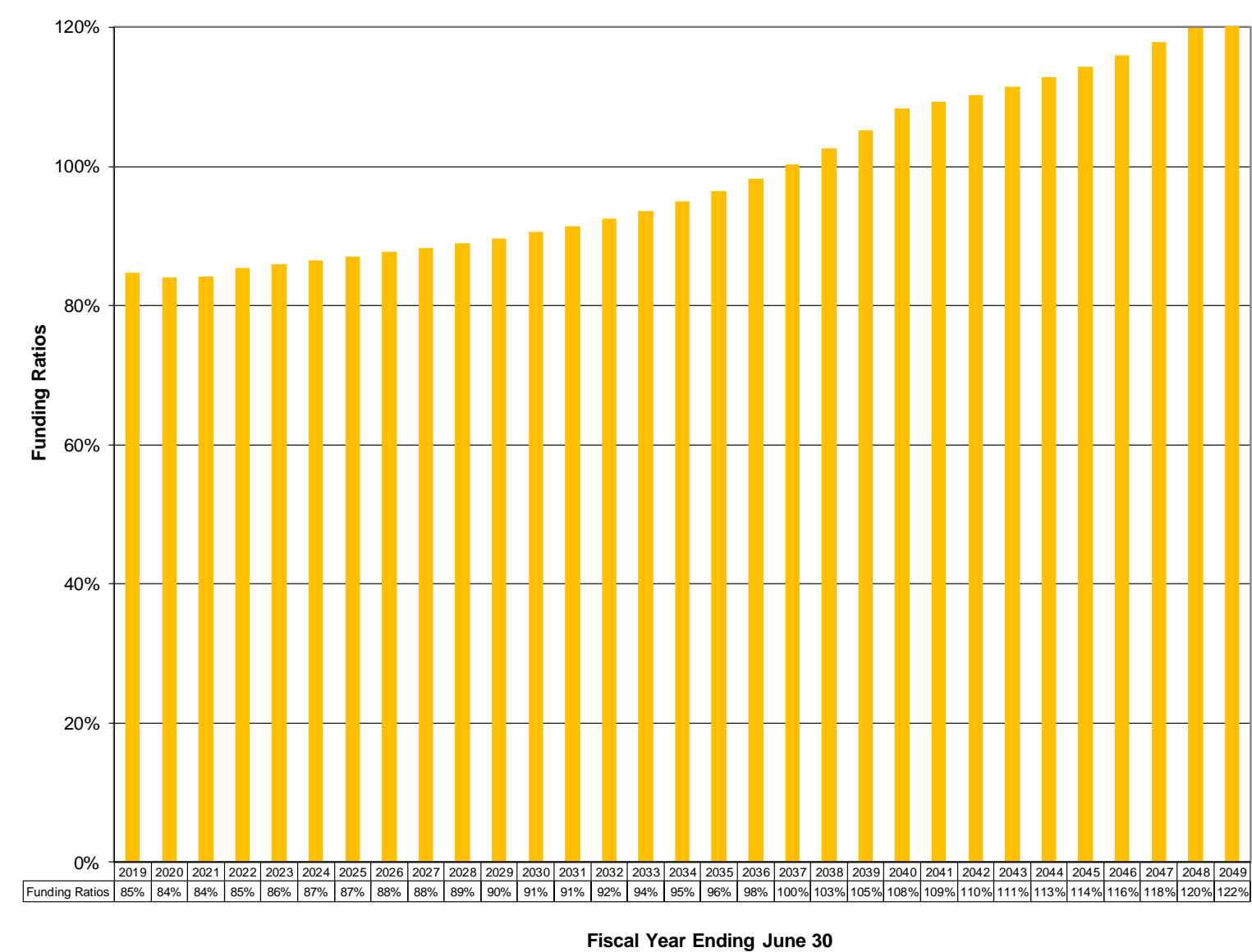
Based on Total DB and DCR Payroll



Section 4.4: Projected Employer/State Contribution Amounts



Section 4.5: Projection of Funded Ratios



Section 4.6: Table of Projected Actuarial Results

State of Alaska TRS Financial Projections (\$ in Thousands) Based on 2018 Actuarial Valuation Results, 0% Population Growth for Payroll Baseline

Fiscal Year End	FY 19 Investment Return 7.38%				Investment Return of 7.38% for FY 19 and beyond.													Deferred Asset Gain/(Loss)	Ending Actuarial Assets
	Valuation Amounts on July 1 (Beginning of Fiscal Year)				Flow Amounts During Following 12 Months								Benefit Payments	Net Contribs	Investment Earnings				
	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Total Salaries	Er/State Ctb Rate	DCR Ctb Rate	Total Ctb Rate	DB Contributions										
									Employer	State Assistance	Employee	Total							
2019	\$8,440,309	\$9,960,439	84.7%	(\$1,520,130)	\$738,653	24.57%	5.34%	29.91%	\$53,331	\$128,174	\$37,608	\$219,113	\$612,985	(\$393,872)	\$603,540	\$26,200	\$8,526,329		
2020	8,526,329	10,147,258	84.0%	(1,620,929)	745,363	25.64%	5.85%	31.49%	50,014	141,129	35,173	226,316	636,342	(410,026)	619,657	81,594	8,680,566		
2021	8,680,566	10,316,444	84.1%	(1,635,878)	753,634	23.92%	6.13%	30.05%	48,459	131,811	32,828	213,098	662,669	(449,571)	633,264	4,524	8,941,329		
2022	8,941,329	10,470,469	85.4%	(1,529,140)	763,007	23.15%	6.60%	29.75%	45,475	131,161	30,618	207,254	687,968	(480,714)	645,589	0	9,110,728		
2023	9,110,728	10,598,518	86.0%	(1,487,790)	773,442	22.77%	7.04%	29.81%	42,694	133,419	28,460	204,573	712,984	(508,411)	656,761	0	9,259,078		
2024	9,259,078	10,703,722	86.5%	(1,444,644)	784,676	22.44%	7.47%	29.91%	39,940	136,141	26,338	202,419	737,417	(534,998)	666,772	0	9,390,852		
2025	9,390,852	10,785,487	87.1%	(1,394,635)	796,827	22.14%	7.88%	30.02%	37,292	139,126	24,329	200,747	761,734	(560,987)	675,593	0	9,505,458		
2026	9,505,458	10,842,792	87.7%	(1,337,334)	810,065	21.85%	8.26%	30.11%	34,833	142,166	22,437	199,436	785,761	(586,325)	683,173	0	9,602,306		
2027	9,602,306	10,874,211	88.3%	(1,271,905)	824,084	21.59%	8.63%	30.22%	32,386	145,533	20,573	198,492	807,782	(609,290)	689,546	0	9,682,562		
2028	9,682,562	10,879,722	89.0%	(1,197,160)	839,068	21.35%	8.96%	30.31%	30,206	148,935	13,509	192,650	829,940	(637,290)	694,514	0	9,739,786		
2029	9,739,786	10,858,455	89.7%	(1,118,669)	855,555	21.16%	9.26%	30.42%	28,233	152,802	11,807	192,842	845,430	(652,588)	698,280	0	9,785,478		
2030	9,785,478	10,809,451	90.5%	(1,023,973)	873,504	20.96%	9.53%	30.49%	26,467	156,619	10,133	193,219	863,883	(670,664)	701,084	0	9,815,897		
2031	9,815,897	10,733,425	91.5%	(917,528)	892,387	20.80%	9.77%	30.57%	24,897	160,719	8,656	194,272	880,476	(686,204)	702,868	0	9,832,561		
2032	9,832,561	10,631,603	92.5%	(799,042)	912,342	20.64%	9.98%	30.62%	23,538	164,769	7,390	195,697	895,616	(699,919)	703,706	0	9,836,349		
2033	9,836,349	10,503,598	93.6%	(667,249)	933,304	20.52%	10.17%	30.69%	22,306	169,208	6,160	197,674	908,412	(710,738)	703,721	0	9,829,332		
2034	9,829,332	10,349,955	95.0%	(520,623)	955,349	20.42%	10.33%	30.75%	21,304	173,778	5,159	200,241	917,260	(717,019)	703,120	0	9,815,433		
2035	9,815,433	10,173,267	96.5%	(357,834)	978,337	20.34%	10.46%	30.80%	20,545	178,449	4,207	203,201	922,182	(718,981)	702,183	0	9,798,635		
2036	9,798,635	9,976,200	98.2%	(177,565)	1,002,164	20.27%	10.57%	30.84%	19,943	183,196	3,508	206,647	924,162	(717,515)	701,169	0	9,782,289		
2037	9,782,289	9,760,622	100.2%	21,667	1,026,938	20.22%	10.66%	30.88%	19,511	188,136	2,875	210,522	923,360	(712,838)	700,320	0	9,769,772		
2038	9,769,772	9,528,369	102.5%	241,403	1,052,692	20.18%	10.73%	30.91%	19,264	193,169	2,316	214,749	918,930	(704,181)	699,913	0	9,765,503		
2039	9,765,503	9,282,243	105.2%	483,260	1,079,323	20.17%	10.80%	30.97%	18,996	198,704	1,835	219,535	913,151	(693,616)	700,206	0	9,772,094		
2040	9,772,094	9,022,829	108.3%	749,265	1,106,788	0.53%	10.84%	11.37%	5,866	0	1,439	7,305	905,483	(898,178)	685,840	0	9,559,756		
2041	9,559,756	8,751,325	109.2%	808,431	1,134,899	0.49%	10.88%	11.37%	5,561	0	1,135	6,696	893,217	(886,521)	670,629	0	9,343,864		
2042	9,343,864	8,471,776	110.3%	872,088	1,163,686	0.46%	10.91%	11.37%	5,353	0	931	6,284	877,989	(871,705)	655,281	0	9,127,440		
2043	9,127,440	8,186,801	111.5%	940,639	1,193,117	0.45%	10.94%	11.39%	5,369	0	716	6,085	858,052	(851,967)	640,085	0	8,915,558		
2044	8,915,558	7,900,994	112.8%	1,014,564	1,223,297	0.31%	10.96%	11.27%	3,792	0	489	4,281	835,691	(831,410)	625,262	0	8,709,410		
2045	8,709,410	7,616,917	114.3%	1,092,493	1,254,163	0.04%	10.97%	11.01%	501	0	376	877	811,117	(810,240)	610,891	0	8,510,061		
2046	8,510,061	7,337,075	116.0%	1,172,986	1,285,679	0.03%	10.98%	11.01%	386	0	257	643	786,801	(786,158)	597,127	0	8,321,030		
2047	8,321,030	7,061,590	117.8%	1,259,440	1,317,910	0.02%	10.99%	11.01%	264	0	264	528	762,306	(761,778)	584,136	0	8,143,388		
2048	8,143,388	6,791,025	119.9%	1,352,363	1,350,893	0.02%	10.99%	11.01%	270	0	135	405	738,856	(738,451)	571,943	0	7,976,880		
Totals:									\$686,995	\$3,297,144	\$341,661	\$4,325,801							

Note: The FY19 and FY20 Employer/State contribution rates shown above differ from those shown in Section 1.6 because they are adjusted for total salaries.

Section 5: Member Data

Section 5.1: Summary of Members Included

As of June 30	2014	2015	2016	2017	2018 ¹
Active Members					
1. Number	5,861	5,502	5,123	4,772	4,418
2. Average Age	49.79	50.09	50.50	50.86	51.13
3. Average Credited Service	16.43	16.94	17.53	18.12	18.62
4. Average Entry Age	33.36	33.15	32.97	32.74	32.51
5. Average Annual Earnings	\$ 81,023	\$ 82,995	\$ 84,954	\$ 86,327	\$ 87,734
6. Number Vested	5,586	5,297	4,966	4,772	4,418
7. Percent Who Are Vested	95.3%	96.3%	96.9%	100.0%	100.0%
Retirees, Disabilitants, and Beneficiaries					
1. Number	11,750	12,418	12,726	12,983	13,277
2. Average Age	69.09	69.35	69.85	70.36	70.78
3. Average Years Since Retirement	N/A	13.50	13.78	14.13	14.40
4. Average Monthly Pension Benefit					
Base	\$ 2,110	\$ 2,175	\$ 2,204	\$ 2,228	\$ 2,273
COLA ²	126	129	128	128	128
PRPA ²	567	550	529	506	489
Adjustment	0	0	0	0	0
Sick	57	58	60	62	64
Total	\$ 2,860	\$ 2,912	\$ 2,921	\$ 2,924	\$ 2,954
Vested Terminations (vested at termination, not refunded contributions or commenced benefit)					
1. Number	1,274 ³	890	875	876	797
2. Average Age	52.56	50.09	50.25	50.82	51.01
3. Average Monthly Pension Benefit	\$ 1,916	\$ 1,273	\$ 1,352	\$ 1,441	\$ 1,350
Non-Vested Terminations (not vested at termination, not refunded contributions)					
1. Number	2,328	2,218	2,103	1,994	1,900
2. Average Account Balance	\$ 18,452	\$ 18,962	\$ 19,728	\$ 20,290	\$ 20,872
Total Number of Members	21,213	21,028	20,827	20,625	20,392

¹ 33 members who were terminated before the valuation date were subsequently rehired, per census data as of October 1, 2018.

These members were valued as active as of the valuation date.

² Calculated by taking the average of the data field, as provided by the State of Alaska, for all participants in the group.

³ Includes 279 members eligible for unreduced retirement on June 30, 2014.

Summary of Members Included

As of June 30, 2018	DB			DCR Tier 3	Grand Total
	Tier 1	Tier 2	Total		
Active Members					
1. Numbers	339	4,079	4,418	4,915	9,333
2. Average Age	61.06	50.30	51.13	40.64	45.61
3. Average Credited Service	28.03	17.84	18.62	5.30	11.61
4. Average Entry Age	33.03	32.46	32.51	35.34	34.00
5. Annual Earnings					
a. Amount	\$ 32,524,148	\$ 353,492,050	\$ 386,016,198	\$ 334,803,063	\$ 720,819,261
b. Average	\$ 95,941	\$ 86,661	\$ 87,374	\$ 68,119	\$ 77,233

Total and average annual earnings ("valuation pay") are the annualized earnings for the fiscal year ending on the valuation date.

As of June 30, 2018	Tier 1	Tier 2	Total
Retirees, Disabilitants and Beneficiaries			
1. Numbers	10,665	2,612	13,277
2. Average Age	72.12	65.30	70.78
3. Average Years Since Retirement	16.67	5.12	14.40
4. Average Monthly Pension Benefit			
Base	\$ 2,324	\$ 2,066	\$ 2,273
COLA	148	47	128
PRPA	593	60	489
Adjustment	0	0	0
Sick	66	59	64

Summary of Members Included

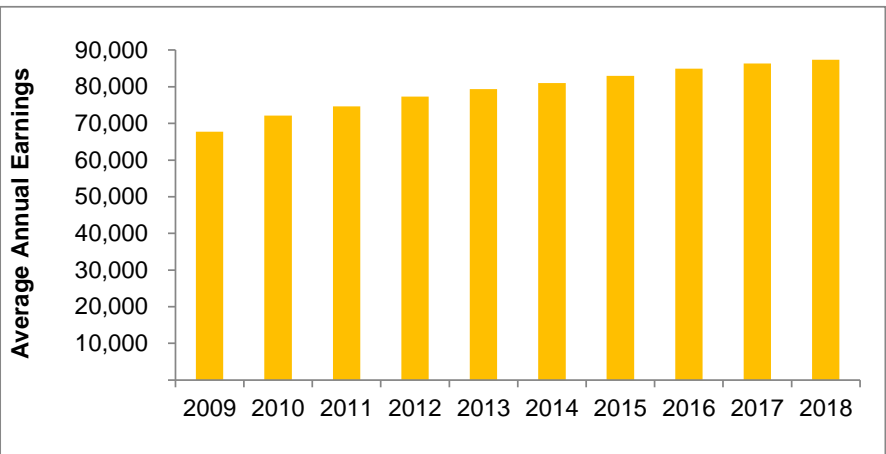
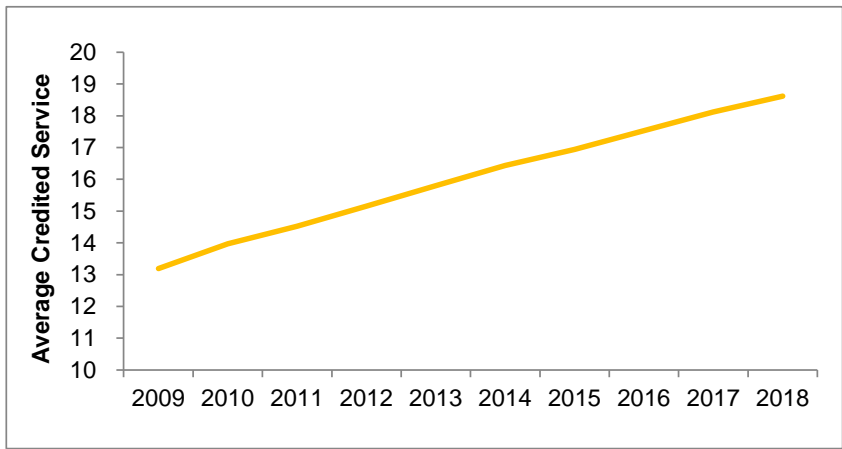
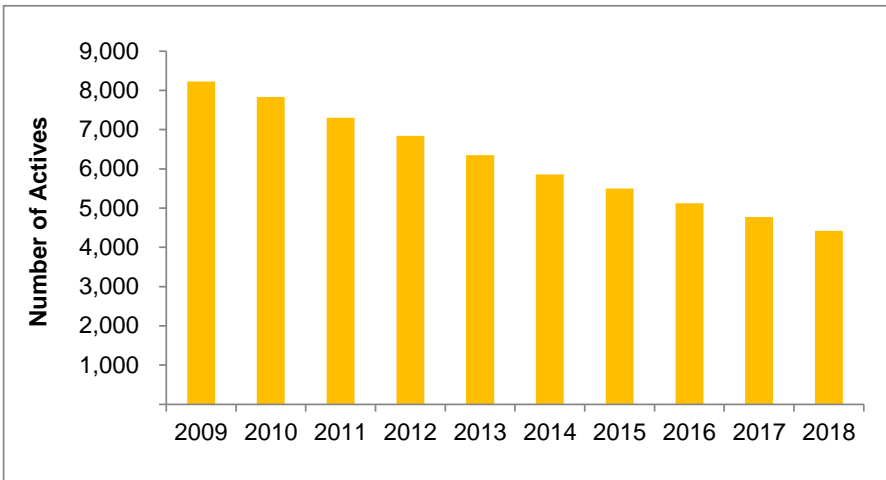
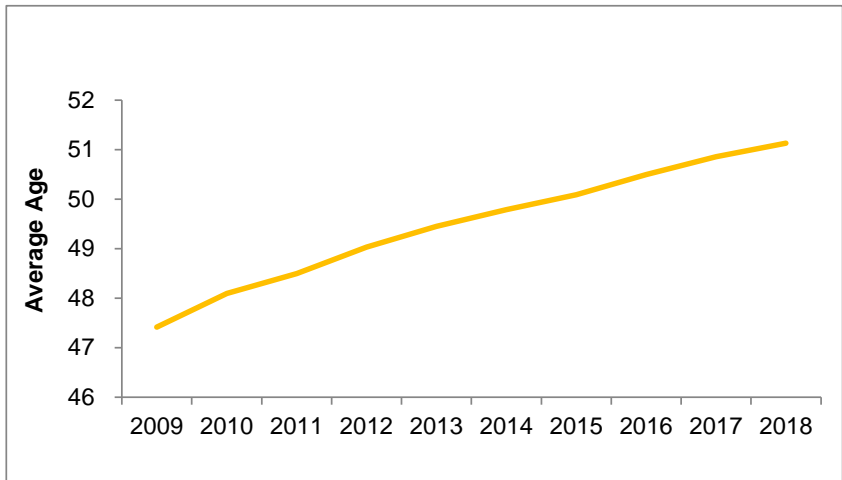
As of June 30, 2018	Active	Retiree	Covered Spouse	Covered Children / Dependent	Deferred	Total
Retiree Medical Participants						
1. Retiree Coverage Only	4,371	7,323	0	0	240	7,563
2. Retiree + Spouse	0	3,848	3,848	0	745	8,441
3. Retiree + Children / Other Dependent	0	151	0	196	0	347
4. Family	<u>0</u>	<u>392</u>	<u>392</u>	<u>602</u>	<u>0</u>	<u>1,386</u>
5. Total	4,371	11,714	4,240	798	985	17,737

Retiree Medical Participants as of June 30, 2018					
	Retiree	Covered Spouse	Covered Children / Dependent	Deferred	All Members
Pre-Medicare	2,702	1,546	798	972	6,018
Medicare Part A & B	8,811	2,667	0	13	11,491
Medicare Part B Only	<u>201</u>	<u>27</u>	<u>0</u>	<u>0</u>	<u>228</u>
Total	11,714	4,240	798	985	17,737

As of June 30, 2018	Retiree
Summary of Retiree Medical Data Received	
1. Retiree records on pension data	13,277
2. Records valued in a different retiree healthcare plan ¹	(1,187)
3. Records without medical coverage	<u>(376)</u>
4. Total	11,714

¹ Each member's retiree medical benefits are valued in the plan they retired from where they receive the most pension benefits.

Summary of Members Included - Active Members at June 30



Total annual earnings are the annualized earnings for the fiscal year ending on the valuation date.

Section 5.2: Age and Service Distribution of Active Members

Annual Earnings by Age

Age	Number	Total Annual Earnings	Average Annual Earnings
0 – 19	0	\$ 0	\$ 0
20 – 24	0	0	0
25 – 29	0	0	0
30 – 34	1	92,021	92,021
35 – 39	311	24,482,269	78,721
40 – 44	737	61,443,593	83,370
45 – 49	1,097	95,488,718	87,045
50 – 54	908	80,689,376	88,865
55 – 59	739	66,272,708	89,679
60 – 64	399	35,915,940	90,015
65 – 69	162	15,319,104	94,562
70 – 74	55	5,354,904	97,362
75+	9	957,565	106,396
Total	4,418	\$ 386,016,198	\$ 87,374

Annual Earnings by Credited Service

Years of Service	Number	Total Annual Earnings	Average Annual Earnings
0	0	\$ 0	\$ 0
1	1	62,388	62,388
2	5	358,677	71,735
3	13	794,332	61,102
4	12	772,043	64,337
0 – 4	31	1,987,440	64,111
5 – 9	156	11,388,853	73,005
10 – 14	937	75,946,185	81,052
15 – 19	1,590	137,142,715	86,253
20 – 24	1,092	99,903,683	91,487
25 – 29	453	43,175,323	95,310
30 – 34	116	11,637,608	100,324
35 – 39	25	2,656,827	106,273
40+	18	2,177,564	120,976
Total	4,418	\$ 386,016,198	\$ 87,374

Years of Credited Service by Age

Age	Years of Service									Total
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	
0 – 19	0	0	0	0	0	0	0	0	0	0
20 – 24	0	0	0	0	0	0	0	0	0	0
25 – 29	0	0	0	0	0	0	0	0	0	0
30 – 34	0	1	0	0	0	0	0	0	0	1
35 – 39	6	26	204	75	0	0	0	0	0	311
40 – 44	10	45	246	376	60	0	0	0	0	737
45 – 49	7	34	197	451	374	34	0	0	0	1,097
50 – 54	3	22	120	286	293	172	12	0	0	908
55 – 59	2	13	83	242	208	148	41	2	0	739
60 – 64	2	10	59	106	108	65	36	11	2	399
65 – 69	1	5	22	42	36	28	15	7	6	162
70 – 74	0	0	6	10	11	6	11	4	7	55
75+	0	0	0	2	2	0	1	1	3	9
Total	31	156	937	1,590	1,092	453	116	25	18	4,418

Total and average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

Section 5.3: Member Data Reconciliation

Pension

	Active Members	Inactive Members					Total
		Due a Refund	Deferred Benefits	Retired Members	Disabled Members	Bene-ficiaries	
As of June 30, 2017	4,772	1,994	876	11,716	27	1,240	20,625
Vested Terminations	(86)	(2)	89	(1)	0	0	0
Non-vested Terminations	(5)	5	0	0	0	0	0
Cash-outs	(1)	(52)	(6)	0	0	0	(59)
Disability Retirements	(2)	0	(1)	0	3	0	0
Age Retirements	(342)	(8)	(110)	465	(5)	N/A	0
Deaths With Beneficiary	(5)	0	(2)	(59)	0	66	0
Deaths Without Beneficiary	(3)	(3)	(1)	(126)	0	(45)	(178)
Data Corrections	0	0	1	(1)	0	(18)	(18)
Transfers Out	0	0	0	0	0	0	0
Rehires	89	(34)	(49)	(6)	0	0	0
Pick Ups*	1	0	0	0	0	21	22
Net Change	(354)	(94)	(79)	272	(2)	24	(233)
As of June 30, 2018	4,418	1,900	797	11,988	25	1,264	20,392

* Pickup beneficiaries are primarily new DROs.

Healthcare

	Inactive Members					Total Inactive Members
	Active	Inactive Individuals	Covered Spouses	Covered Children	Deferred	
As of June 30, 2017	4,714	11,546	4,279	793	959	17,577
Vested Terminations	(84)	0	0	0	84	84
Non-vested Terminations	(5)	0	0	0	0	0
Cash-outs	(1)	0	0	0	(6)	(6)
Disability	(2)	1	1	0	0	2
Rehires	88	(4)	(2)	0	0	(6)
Retirement	(291)	291	167	121	0	579
Retired from deferred status	0	40	25	0	(40)	25
Retired without Medical Coverage	(37)	0	0	0	0	0
Deceased	(11)	(213)	(5)	0	(12)	(230)
New Beneficiaries	0	29	(29)	0	0	0
Added Dependent Coverage	N/A	0	51	24	0	75
Dropped Dependent Coverage	N/A	0	(248)	(76)	0	(324)
Added Retiree Medical Coverage	0	31	2	5	0	38
Dropped Retiree Medical Coverage	0	(7)	(1)	(69)	0	(77)
Net Change	(343)	168	(39)	5	26	160
As of June 30, 2018	4,371	11,714	4,240	798	985	17,737

Section 5.4: Schedule of Active Member Data

Valuation Date	Number	Annual Earnings (000's)	Annual Average Earnings	Percent Increase/ (Decrease) in Average Earnings	Number of Participating Employers
June 30, 2018	4,418	\$ 386,016	\$ 87,374	1.2%	56
June 30, 2017	4,772	411,951	86,327	1.6%	57
June 30, 2016	5,123	435,222	84,954	2.4%	57
June 30, 2015	5,502	456,636	82,995	2.4%	58
June 30, 2014	5,861	474,873	81,023	2.1%	58
June 30, 2013	6,352	504,260	79,386	2.6%	58
June 30, 2012	6,845	529,468	77,351	3.6%	58
June 30, 2011	7,303	545,155	74,648	3.5%	58
June 30, 2010	7,832	564,887	72,125	6.5%	58
June 30, 2009	8,226	557,026	67,715	5.2%	58
June 30, 2008	8,531	549,148	64,371	5.8%	58

Total and average annual earnings ("valuation pay") are the annualized earnings for the fiscal year ending on the valuation date.

Section 5.5: Active Member Payroll Reconciliation

Payroll Field	Payroll Data (000s)
a) DRB actual reported salaries FY18 – employer list	\$ 773,981
b) DRB actual reported salaries FY18 – valuation data	695,205
c) Include October data adjustment for rehires	707,711
d) Annualized valuation data	720,819
e) Valuation payroll as of June 30, 2018	748,076
f) Rate payroll for FY19	738,653
g) Rate payroll for FY21	753,634

- Actual reported salaries from DRB employer listing showing all payroll paid during FY18, including those who were not active as of June 30, 2018
- Payroll from valuation data for people who are in active status as of June 30, 2018
- Payroll from (b) including additional people added who were listed as active as of October 1, 2018 and were run as active in the valuation
- Payroll from (c) annualized for both new entrants and part-timers
- Payroll from (d) with one year of salary scale applied to estimate salaries payable for the upcoming year
- Payroll from (e) with the part-timer annualization removed
- Payroll from (f) with two years of assumed decrements and salary scale, and 0% population growth

Section 5.6: Summary of New Pension Benefit Recipients

During the Year Ending June 30	2014	2015	2016	2017	2018
Service					
1. Number	146	791	422	376	465
2. Average Age at Commencement	60.43	59.87	60.32	59.77	59.98
3. Average Monthly Pension Benefit	\$ 2,433	\$ 3,363	\$ 3,190	\$ 3,300	\$ 3,527
Survivor (including surviving spouse and DROs)					
1. Number	76	89	104	108	87
2. Average Age at Commencement	70.21	70.22	72.15	70.57	71.61
3. Average Monthly Pension Benefit	\$ 1,658	\$ 1,715	\$ 1,633	\$ 1,643	\$ 2,022
Disability					
1. Number	4	8	4	3	3
2. Average Age at Commencement	50.80	53.62	50.48	43.30	49.92
3. Average Monthly Pension Benefit	\$ 3,945	\$ 3,808	\$ 3,616	\$ 3,678	\$ 3,625
Total					
1. Number	226	888	530	487	555
2. Average Age at Commencement	63.55	60.85	62.56	62.06	61.75
3. Average Monthly Pension Benefit	\$ 2,199	\$ 3,202	\$ 2,888	\$ 2,935	\$ 3,292

Summary of New Pension Benefit Recipients

Average Pension Benefit Payments

	Years of Credited Service						
	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30+
Period 7/1/17 – 6/30/18:							
Average Monthly Pension Benefit	\$ 204	\$ 899	\$ 1,583	\$ 2,583	\$ 3,422	\$ 4,580	\$ 6,083
Number of Recipients	5	21	61	85	109	130	57
Period 7/1/16 – 6/30/17:							
Average Monthly Pension Benefit	\$ 426	\$ 795	\$ 1,626	\$ 2,433	\$ 3,549	\$ 4,536	\$ 6,351
Number of Recipients	10	22	60	75	100	64	48
Period 7/1/15 – 6/30/16:							
Average Monthly Pension Benefit	\$ 245	\$ 1,002	\$ 1,535	\$ 2,540	\$ 3,445	\$ 4,472	\$ 6,168
Number of Recipients	11	31	82	69	105	74	54
Period 7/1/14 – 6/30/15:							
Average Monthly Pension Benefit	\$ 349	\$ 1,041	\$ 1,342	\$ 2,205	\$ 3,267	\$ 4,220	\$ 5,900
Number of Recipients	11	33	70	67	137	125	94
Period 7/1/13 – 6/30/14:							
Average Monthly Pension Benefit	\$ 235	\$ 904	\$ 1,435	\$ 2,398	\$ 3,016	\$ 4,073	\$ 7,485
Number of Recipients	8	31	31	28	22	18	12
Period 7/1/12 – 6/30/13:							
Average Monthly Pension Benefit	\$ 253	\$ 1,030	\$ 1,496	\$ 2,450	\$ 3,281	\$ 4,384	\$ 6,052
Number of Recipients	10	57	67	90	101	79	64
Period 7/1/11 – 6/30/12:							
Average Monthly Pension Benefit	\$ 353	\$ 1,064	\$ 1,512	\$ 2,241	\$ 3,276	\$ 4,320	\$ 5,739
Number of Recipients	11	43	62	61	118	81	58
Period 7/1/10 – 6/30/11:							
Average Monthly Pension Benefit	\$ 146	\$ 902	\$ 1,432	\$ 2,328	\$ 3,131	\$ 4,283	\$ 5,496
Number of Recipients	5	68	63	77	118	104	67
Period 7/1/09 – 6/30/10:							
Average Monthly Pension Benefit	\$ 482	\$ 1,020	\$ 1,343	\$ 2,263	\$ 2,992	\$ 4,120	\$ 6,263
Number of Recipients	14	50	63	85	109	79	49

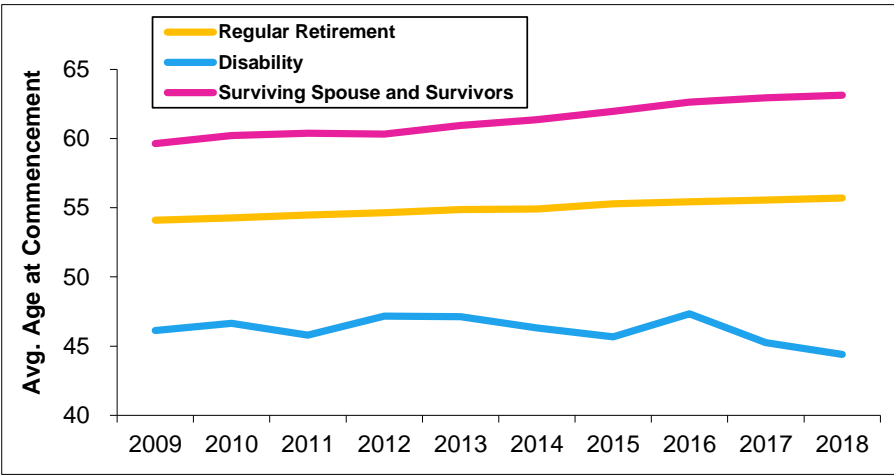
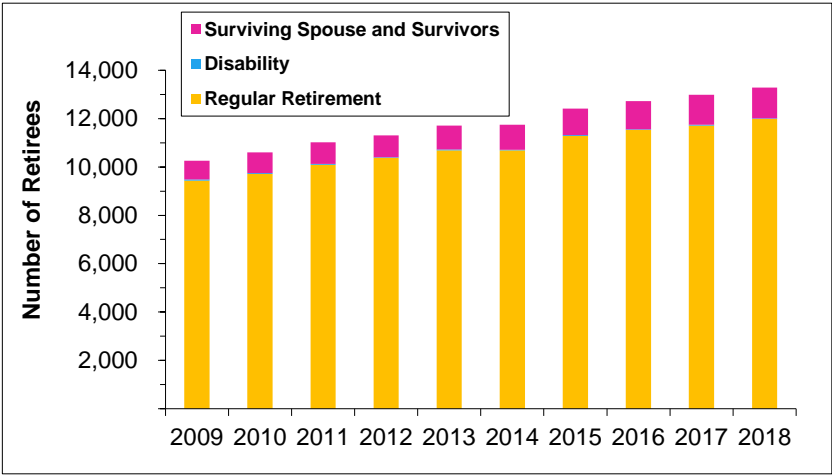
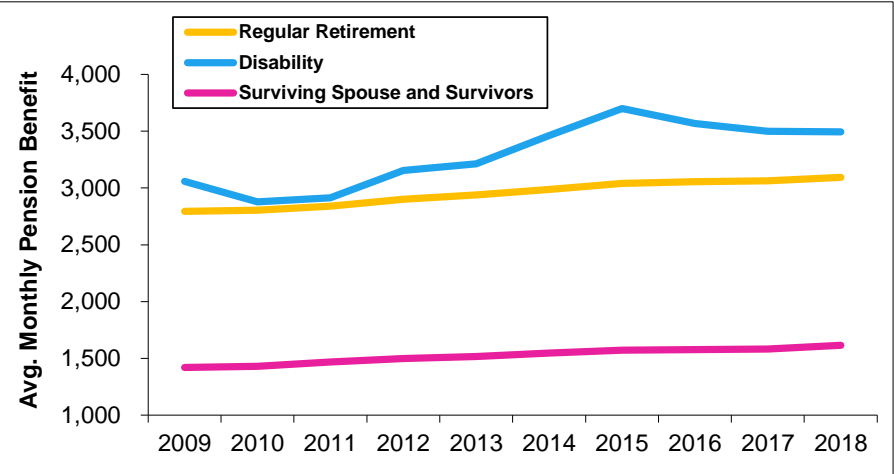
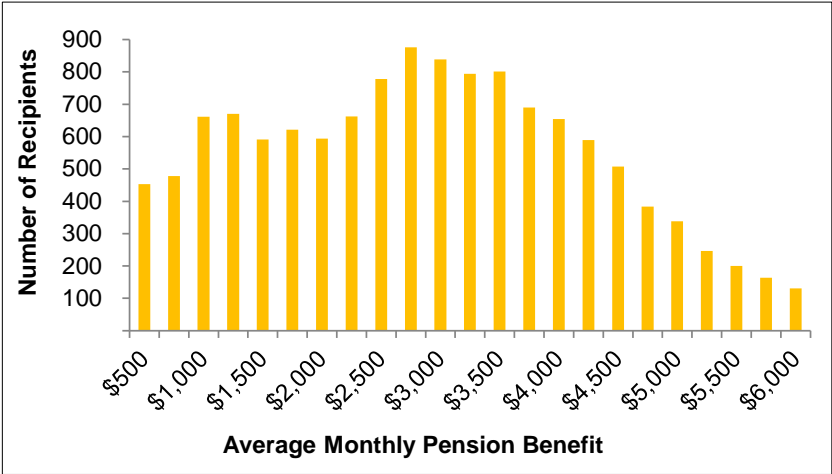
“Average Monthly Benefit” includes postretirement pension adjustments and Alaska cost-of-living increases.

Beneficiaries are not included in the table above.

Section 5.7: Summary of All Pension Benefit Recipients

As of June 30	2014	2015	2016	2017	2018
Service					
1. Number, Fiscal Year Start	10,688	10,681	11,287	11,527	11,716
2. Net Change	(7)	606	240	189	272
3. Number, Fiscal Year End	10,681	11,287	11,527	11,716	11,988
4. Average Age at Commencement	54.91	55.28	55.43	55.55	55.70
5. Average Current Age	68.87	69.09	69.58	70.09	70.50
6. Average Monthly Pension Benefit	\$ 2,986	\$ 3,040	\$ 3,056	\$ 3,064	\$ 3,093
Surviving Spouse (includes DROs)					
1. Number, Fiscal Year Start	980	1,034	1,096	1,168	1,237
2. Net Change	54	62	72	69	24
3. Number, Fiscal Year End	1,034	1,096	1,168	1,237	1,261
4. Average Age at Commencement	61.47	62.04	62.66	62.98	63.16
5. Average Current Age	71.98	72.54	73.07	73.42	73.90
6. Average Monthly Pension Benefit	\$ 1,548	\$ 1,576	\$ 1,580	\$ 1,584	\$ 1,618
Survivor (other than spouse)					
1. Number, Fiscal Year Start	5	5	6	3	3
2. Net Change	0	1	(3)	0	0
3. Number, Fiscal Year End	5	6	3	3	3
4. Average Age at Commencement	39.19	49.91	52.81	52.81	53.85
5. Average Current Age	44.07	54.06	57.22	58.22	60.65
6. Average Monthly Pension Benefit	\$ 1,302	\$ 1,128	\$ 746	\$ 746	\$ 749
Disability					
1. Number, Fiscal Year Start	32	30	29	28	27
2. Net Change	(2)	(1)	(1)	(1)	(2)
3. Number, Fiscal Year End	30	29	28	27	25
4. Average Age at Commencement	46.32	45.67	47.34	45.25	44.40
5. Average Current Age	50.40	49.16	51.56	50.34	50.02
6. Average Monthly Pension Benefit	\$ 3,461	\$ 3,699	\$ 3,568	\$ 3,500	\$ 3,494
Total					
1. Number, Fiscal Year Start	11,705	11,750	12,418	12,726	12,983
2. Net Change	45	668	308	257	294
3. Number, Fiscal Year End	11,750	12,418	12,726	12,983	13,277
4. Average Age at Commencement	55.45	55.85	56.07	56.24	56.38
5. Average Current Age	69.09	69.35	69.86	70.36	70.78
6. Average Monthly Pension Benefit	\$ 2,860	\$ 2,912	\$ 2,921	\$ 2,924	\$ 2,954

Summary of All Pension Benefit Recipients



Summary of All Pension Benefit Recipients

Distribution of Annual Pension Benefits for Benefit Recipients

Annual Pension Benefit by Age				Annual Pension Benefit by Years Since Commencement			
Age	Number	Total Annual Pension Benefit	Average Annual Pension Benefit	Years Since Commencement	Number	Total Annual Pension Benefit	Average Annual Pension Benefit
0 – 19	0	\$ 0	\$ 0	0	475	\$ 18,821,845	\$ 39,625
20 – 24	0	0	0	1	497	18,301,167	36,823
25 – 29	0	0	0	2	493	17,799,966	36,105
30 – 34	0	0	0	3	561	21,096,646	37,605
35 – 39	1	2,472	2,472	4	518	18,812,937	36,318
40 – 44	12	433,426	36,119	0 – 4	2,544	94,832,561	37,277
45 – 49	56	2,114,209	37,754	5 – 9	2,357	81,548,160	34,598
50 – 54	279	11,290,345	40,467	10 – 14	2,146	66,396,260	30,940
55 – 59	805	31,720,769	39,405	15 – 19	2,158	69,027,386	31,987
60 – 64	2,058	69,602,374	33,820	20 – 24	2,136	81,251,685	38,039
65 – 69	3,226	106,973,449	33,160	25 – 29	930	35,681,460	38,367
70 – 74	2,980	104,253,090	34,984	30 – 34	722	31,947,799	44,249
75+	3,860	144,108,157	37,334	35 – 39	202	7,257,801	35,930
				40+	82	2,555,179	31,161
Total	13,277	\$ 470,498,291	\$ 35,437	Total	13,277	\$ 470,498,291	\$ 35,437

Years Since Commencement by Age

Age	Years Since Commencement									Total
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	
0 – 19	0	0	0	0	0	0	0	0	0	0
20 – 24	0	0	0	0	0	0	0	0	0	0
25 – 29	0	0	0	0	0	0	0	0	0	0
30 – 34	0	0	0	0	0	0	0	0	0	0
35 – 39	1	0	0	0	0	0	0	0	0	1
40 – 44	10	2	0	0	0	0	0	0	0	12
45 – 49	48	5	2	0	1	0	0	0	0	56
50 – 54	201	63	13	2	0	0	0	0	0	279
55 – 59	443	217	121	20	3	1	0	0	0	805
60 – 64	862	620	352	178	44	1	0	0	1	2,058
65 – 69	552	873	841	604	327	26	2	1	0	3,226
70 – 74	218	352	565	874	719	199	47	4	2	2,980
75+	209	225	252	480	1,042	703	673	197	79	3,860
Total	2,544	2,357	2,146	2,158	2,136	930	722	202	82	13,277

Section 5.8: Schedule of Pension Benefit Recipients by Type of Pension Benefit and Option Elected

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit			Option Selected			
		1	2	3	1	2	3	4
\$ 1 – 300	233	163	70	0	141	45	41	6
301 – 600	393	282	111	0	203	82	87	21
601 – 900	677	529	148	0	365	139	137	36
901 – 1,200	821	661	160	0	465	173	151	32
1,201 – 1,500	730	577	153	0	385	163	155	27
1,501 – 1,800	737	582	155	0	397	164	152	24
1,801 – 2,100	714	590	124	0	353	157	177	27
2,101 – 2,400	874	769	105	0	380	217	248	29
2,401 – 2,700	1,029	944	84	1	438	247	309	35
2,701 – 3,000	1,016	960	53	3	416	249	324	27
3,001 – 3,300	973	933	32	8	372	220	351	30
3,301 – 3,600	914	889	21	4	351	189	352	22
3,601 – 3,900	810	790	17	3	294	176	309	31
3,901 – 4,200	708	698	8	2	277	134	280	17
4,200+	2,648	2,621	23	4	923	445	1,196	84
Total	13,277	11,988	1,264	25	5,760	2,800	4,269	448

Type of Pension Benefit

1. Regular Retirement
2. Survivor Payment
3. Disability

Option Selected

1. Whole Life Annuity
2. 75% Joint and Contingent Annuity
3. 50% Joint and Contingent Annuity
4. 66 2/3% Joint and Survivor Annuity

Section 5.9: Pension Benefit Recipients Added to and Removed from Rolls

Year Ended	Added to Rolls		Removed from Rolls		Rolls – End of Year		Percent Increase in Annual Pension Benefits	Average Annual Pension Benefit
	No. ¹	Annual Pension Benefits ¹	No. ¹	Annual Pension Benefits ¹	No.	Annual Pension Benefits		
June 30, 2018	555	\$ 21,924,986	261	\$ 6,926,129	13,277	\$ 470,498,291	3.29%	\$ 35,437
June 30, 2017	487	17,151,684	230	7,736,025	12,983	455,499,434	2.11%	35,084
June 30, 2016	530	18,364,581	222	6,144,109	12,726	446,083,775	2.82%	35,053
June 30, 2015	888	34,120,658	220	3,531,501	12,418	433,863,303	7.59%	34,938
June 30, 2014	226	5,964,256	181	(1,150,187)	11,750	403,274,146	1.80%	34,321
June 30, 2013	576	19,387,542	172	1,652,575	11,705	396,159,703	4.69%	33,845
June 30, 2012	473	17,104,564	188	(617,561)	11,301	378,424,736	4.91%	33,486
June 30, 2011	564	19,546,369	146	1,464,766	11,016	360,702,611	5.28%	32,744
June 30, 2010	533	16,980,817	190	5,495,399	10,598	342,621,008	3.47%	32,329
June 30, 2009	368	9,788,639	139	(2,857,118)	10,255	331,135,590	3.97%	32,290
June 30, 2008	481	14,265,236	133	806,945	10,026	318,489,833	4.41%	31,766

¹ Numbers are estimated, and include other internal transfers.

Section 6: Basis of the Actuarial Valuation

Section 6.1: Summary of Plan Provisions

Effective Date

July 1, 1955, with amendments through June 30, 2018. Chapter 97, 1990 Session Laws of Alaska, created a two-tier retirement system. Members who were first hired under TRS before July 1, 1990 (Tier 1) are eligible for different benefits than members hired after June 30, 1990 (Tier 2). Chapter 9, 2005 Session Laws of Alaska, closed the plan to new members hired after June 30, 2006.

Administration of Plan

The Commissioner of Administration or the Commissioner's designee is the administrator of the system. The Attorney General of the state is the legal counsel for the system and shall advise the administrator and represent the system in legal proceedings.

Prior to June 30, 2005, the Teachers' Retirement Board prescribed policies and adopted regulations and performed other activities necessary to carry out the provisions of the system. The Alaska State Pension Investment Board, Department of Revenue, Treasury Division was responsible for investing TRS funds.

On July 27, 2005, Senate Bill 141, enacted as Chapter 9, 2005 Session laws of Alaska, replaced the Teachers' Retirement Board and the Alaska State Pension Investment Board with the Alaska Retirement Management Board.

Employers Included

Currently, there are 56 employers participating in TRS, including the State of Alaska, 52 school districts, and three other eligible organizations.

Membership

Membership in TRS is mandatory for the following employees hired before July 1, 2006:

- certificated full-time and part-time elementary and secondary teachers, certificated school nurses, and certificated employees in positions requiring teaching certificates;
- positions requiring a teaching certificate as a condition of employment in the Department of Education and Early Development and the Department of Labor and Workforce Development;
- University of Alaska full-time and part-time teachers, and full-time administrative employees in positions requiring academic standing if approved by the TRS administrator;
- certain full-time or part-time teachers of Alaska Native language or culture who have elected to be covered under TRS;
- members on approved sabbatical leave under AS 14.20.310;
- certain State legislators who have elected to be covered under TRS; and
- a teacher who has filed for worker's compensation benefits due to an on-the-job assault and who, as a result of the physical injury, is placed on leave without pay.

Employees participating in the University of Alaska's Optional Retirement Plan or other retirement plans funded by the State are not covered by TRS.

Employees who work half-time in TRS and Public Employees' Retirement System (PERS) simultaneously are eligible for half-time TRS and PERS credit.

Senate Bill 141, signed into law on July 27, 2005, closes the plan effective July 1, 2006 to new members first hired on or after July 1, 2006.

Credited Service

TRS members receive a year of membership credit if they work a minimum of 172 days during the school year (July 1 through June 30 of the following year). Fractional credit is determined based on the number of days worked. Part-time members who work at least 50% of full-time receive membership credit for each day in proportion to full-time service. Credit is granted for all Alaskan public school service.

Members may claim other types of service, including:

- Outside teaching service in out-of-state schools or Alaska private schools (not more than ten years may be claimed);
- Military service (not more than five years of military service or ten years of combined outside and military service may be claimed);
- Alaska Bureau of Indian Affairs (BIA) service;
- Retroactive Alaskan service that was not creditable at the time it occurred, but later became creditable because of legislative change;
- Unused sick leave credit after members retire; and
- Leave of absence without pay.

Except for retroactive Alaska service that occurred before July 1, 1955, and unused sick leave, contributions are required for all claimed service.

Members receiving TRS disability benefits continue to earn TRS credit while disabled.

Survivors who are receiving occupational death benefits continue to earn TRS service credit while occupational survivor benefits are being paid.

Employer Contributions

TRS employers contribute the amounts required, in addition to employees' contributions, to fund the benefits of the system.

The normal cost rate is a uniform rate for all participating employers (less the value of members' contributions).

The past service rate is a uniform rate for all participating employers to amortize the unfunded past service liability with payments that are a level percentage of payroll amount over a closed 25-year period starting June 30, 2014. Effective June 30, 2018, each future year's unfunded service liability is separately amortized on a level percent of pay basis over 25 years.

Employer rates cannot be less than the normal cost rate.

Additional State Contributions

Pursuant to AS14.25.070 effective July 1, 2008, the State shall contribute an amount (in addition to the State contribution as an employer) that when combined with the employer contribution (12.56%) will be sufficient to pay the total contribution rate adopted by The State of Alaska Retirement Management Board.

Member Contributions

Mandatory Contributions: Members are required to contribute 8.65% of their base salaries. Members' contributions are deducted from gross salaries before federal income taxes are withheld.

Contributions for Claimed Service: Member contributions are also required for most of the claimed service described above.

1% Supplemental Contributions: Members who joined the system before July 1, 1982 and elected to participate in the supplemental contributions provision are required to contribute an additional 1% of their salaries. Supplemental contributions are deducted from gross salaries after federal income taxes are withheld. Under the supplemental provision, an eligible spouse or dependent child will receive a survivor's allowance or spouse's pension if the member dies (see below). Supplemental contributions are only refundable upon death (see below).

Interest: Members' contributions earn 4.5% interest, compounded annually on June 30.

Refund of Contributions: Terminated members may receive refunds of their member contribution accounts which includes their mandatory contributions, indebtedness payments, and interest earned. Terminated members' accounts may be attached to satisfy claims under Alaska Statute 09.38.065, federal income tax levies, and valid Qualified Domestic Relations Orders.

Reinstatement of Contributions: Refunded accounts and the corresponding TRS service may be reinstated upon reemployment in TRS prior to July 1, 2010. Interest accrues on refunds until paid in full or members retire.

Retirement Benefits

Eligibility

- a. Members, including deferred vested members, are eligible for normal retirement at age 55 or early retirement at age 50 if they were hired before July 1, 1990 (Tier 1) and age 60 or early retirement at age 55 if they were hired on or after July 1, 1990 (Tier 2). Additionally, they must have at least:
 - (i) eight years of paid-up membership service;
 - (ii) 15 years of paid-up creditable service, the last five years of which are membership service, and they were first hired under TRS before July 1, 1975;
 - (iii) five years of paid-up membership service and three years of paid-up Alaska Bureau of Indian Affairs service;
 - (iv) 12 years of combined part-time and full-time paid-up membership service;
 - (v) two years of paid-up membership service if they are vested in PERS; or
 - (vi) one year of paid-up membership service if they are retired from PERS.
- b. Members may retire at any age when they have:
 - (i) 25 years of paid-up creditable service, the last five years of which are membership service;
 - (ii) 20 years of paid-up membership service;
 - (iii) 20 years of combined paid-up membership and Alaska Bureau of Indian Affairs service, the last five years of which are membership service; or
 - (iv) 20 years of combined paid-up part-time and full-time membership service.

Benefit Type

Lifetime benefits are paid to members. Eligible members may receive normal, unreduced benefits when they (1) reach normal retirement age and complete the service required; or (2) satisfy the minimum service requirements to retire at any age under (b) above. Members may receive early, actuarially reduced benefits when they reach early retirement age and complete the service required.

Members may select joint and survivor options and a last survivor option. Under those options and early retirement, benefits are actuarially adjusted so that members receive the actuarial equivalents of their normal benefit amounts.

Benefit Calculations

Retirement benefits are calculated by multiplying the average base salary (ABS) times the total TRS service times the percentage multiplier. The ABS is determined by averaging the salaries earned during the three highest school years. Members must earn at least 115 days of credit in a school year to include it in the ABS calculation. TRS pays a minimum benefit of \$25.00 per month for each year of service when the calculated benefit is less.

The percentage multipliers are 2% for the first 20 years and 2.5% for all remaining service. Service before July 1, 1990 is calculated at 2%.

Indebtedness

Members who terminate and refund their TRS contributions are not eligible to retire unless they return to TRS employment and pay back their refunds plus interest or accrue additional service which qualifies them for retirement. TRS refunds must be paid in full if the corresponding service is to count toward the minimum service requirements for retirement. Refunded TRS service is included in total service for the purpose of calculating retirement benefits. However, when refunds are not completely paid before retirement, benefits are actuarially reduced for life. Indebtedness balances may also be created when a member purchases qualified claimed service.

Reemployment of Retired Members

Retirees who return to work in a permanent full-time or part-time TRS position after a Normal Retirement are eligible to return under the Standard Option.

Under the Standard Option, retirement and retiree healthcare benefits are suspended while retired members are reemployed under TRS. During reemployment, members earn additional TRS service and contributions are withheld from their wages.

Members retired under the RIP who return to employment under TRS, PERS, Judicial Retirement System (JRS) or the University of Alaska's Optional Retirement Plan will:

- a. forfeit the three years of incentive credits that they received;
- b. owe TRS 110% of the benefits that they received under the RIP, which may include costs for health insurance, excluding amounts that they paid to participate; and
- c. be charged 7% interest from the date that they are reemployed until their indebtedness is paid in full or they retire again. If the indebtedness is not completely paid, future benefits will be actuarially reduced for life.

Employers make contributions to the unfunded liability of the plan on behalf of rehired retired members at the rate the employer is making contributions to the unfunded liability of the plan for other members.

Postemployment Healthcare Benefits

When pension benefits begin, major medical benefits are provided by TRS to (1) all employees first hired before July 1, 1990 (Tier 1) and their surviving spouses and (2) members and their surviving spouses who have twenty-five years of membership service, are disabled or age sixty or older, regardless of their initial hire dates. Employees first hired after June 30, 1990 (Tier 2) and their surviving spouses may receive major medical benefits prior to age sixty by paying premiums.

Medical, prescription drug, dental, vision and audio coverage is provided through the AlaskaCare Retiree Health Plan. Health plan provisions do not vary by retirement tier or age, except for Medicare coordination. Participants in dental, vision, and audio coverage pay a full self-supporting rate and those benefits are not included in this valuation.

Surviving spouses continue coverage only if a pension payment form that provided survivor benefits was elected. Alternate payees (i.e. individuals who are the subject of a domestic relations order or DRO) are allowed to participate in the plan, but must pay the full cost.

Where premiums are required prior to age 60 (Tier 2), the valuation bases this payment upon the age of the retiree.

Participants in the defined benefit plan are covered under the following benefit design:

Plan Feature	Amounts
Deductible (single/family)	\$150 / \$450
Coinsurance - most services	20%
Outpatient surgery/testing	0%
Maximum Out-of-Pocket (single/family, excl. deductible)	\$800 / \$2,400
Rx Copays (generic/ brand/mail-order), does not apply to OOP max	\$4 / \$8 / \$0
Lifetime Maximum	\$2,000,000

The plan coordinates with Medicare on a traditional Coordination of Benefits Method. Starting in 2019, the prescription drug coverage will be through a Medicare Part D EGWP arrangement.

Disability Benefits

Monthly disability benefits are paid to permanently disabled members until they die, recover, or become eligible for normal retirement. To be eligible, members must have at least five years of paid-up membership service.

Disability benefits are equal to 50% of the member's base salary at the time of disability. The benefit is increased by 10% of the base salary for each minor child, up to a maximum of 40%. Members continue to earn TRS service until eligible for normal retirement.

Members are appointed to normal retirement on the first of the month after they become eligible.

Death Benefits

Monthly death benefits may be paid to a spouse or dependent children upon the death of a member. If monthly benefits are not payable under the supplemental contributions provision or occupational and non-occupational death provisions, the designated beneficiary receives the lump sum benefit described below.

Occupational Death

When an active member dies from occupational causes, a monthly survivor's pension may be paid to the spouse, unless benefits are payable under the supplemental contributions provision (below). The pension equals 40% of the member's base salary on the date of death or disability, if earlier. If there is no spouse, the pension may be paid to the member's dependent children. On the member's normal retirement date, the benefit converts to a normal retirement benefit. The normal benefit is based on the member's average base salary on the date of death and service, including service accumulated from the date of the member's death to the normal retirement date.

Non-Occupational Death

When a vested member dies from non-occupational causes, the surviving spouse may elect to receive a monthly 50% joint and survivor benefit or a lump sum benefit, unless benefits are payable under the supplemental contributions provision (below). The monthly benefit is calculated on the member's average base salary and TRS service accrued at the time of death.

Lump Sum Benefit

Upon the death of an active member who has less than one year of service or an inactive member who is not vested, the designated beneficiary receives the member's contribution account, which includes mandatory contributions, indebtedness payments, and interest earned. Any supplemental contributions will also be refunded. If the member has more than one year of TRS service or is vested, the beneficiary also receives \$1,000 and \$100 for each year of TRS service, up to a maximum of \$3,000. An additional \$500 may be payable if the member is survived by dependent children.

Supplemental Contributions Provision: Members are eligible for supplemental coverage if they joined TRS before July 1, 1982, elected to participate in the supplemental provision, and made the required contributions. A survivor's allowance or spouse's pension (below) may be payable if the member made supplemental contributions for at least one year and dies while in membership service or while disabled under TRS. In addition, the allowance and pension may be payable if the member dies while retired or in deferred vested status if supplemental contributions were made for at least five years.

- a. **Survivor's Allowance:** If the member is survived by dependent children, the surviving spouse and dependent children are entitled to a survivor's allowance. The allowance for the spouse is equal to 35% of the member's base salary at the time of death or disability, plus 10% for each dependent child up to a maximum of 40%. The allowance terminates and a spouse's pension becomes payable when there is no longer an eligible dependent child.
- b. **Spouse's Pension:** The spouse's pension is equal to 50% of the retirement benefit that the deceased member was receiving or the unreduced retirement benefit that the deceased member would have received if retired at the time of death. The spouse's pension begins on the first of the month after the member's death or termination of the survivor's allowance.
- c. **Death After Retirement:** If a joint and survivor option was selected at retirement, the eligible spouse receives continuing, lifetime monthly benefits after the member dies. A survivor's allowance or spouse's pension may be payable if the member participated in the supplemental contributions provision. If a joint and survivor option was not selected and benefits are not payable under the supplemental contributions provision, the designated beneficiary receives the member's contribution account, less any benefits already paid and the member's last benefit check.

Postretirement Pension Adjustments

Postretirement pension adjustments (PRPAs) are granted annually to eligible benefit recipients when the consumer price index (CPI) for urban wage earners and clerical workers for Anchorage increases during the preceding calendar year. PRPAs are calculated by multiplying the recipient's base benefit, including past PRPAs, excluding the Alaska COLA, times:

- a. 75% of the CPI increase in the preceding calendar year or 9%, whichever is less, if the recipient is at least age 65 or on TRS disability; or
- b. 50% of the CPI increase in the preceding calendar year or 6%, whichever is less, if the recipient is at least age 60, or under age 60 if the recipient has been receiving benefits for at least eight years.

Ad hoc PRPAs, up to a maximum of 4%, may be granted to eligible recipients who were first hired before July 1, 1990 (Tier 1) if the CPI increases and the funded ratio is at least 105%.

In a year where an ad hoc PRPA is granted, eligible recipients will receive the higher of the two calculations.

Alaska Cost-of-Living Allowance (COLA)

Eligible benefit recipients who reside in Alaska receive an Alaska COLA equal to 10% of their base benefits. The following benefit recipients are eligible:

- a. members who were first hired under TRS before July 1, 1990 (Tier 1) and their survivors;
- b. members who were first hired under TRS after June 30, 1990 (Tier 2) and their survivors if they are at least age 65; and
- c. all disabled members.

Changes in Benefit Provisions Valued Since the Prior Valuation

The TRS medical benefit provisions were changed since the prior valuation to reflect the implementation of EGWP as of January 1, 2019.

Section 6.2: Description of Actuarial Methods and Valuation Procedures

The funding method used in this valuation was adopted by the Board in October 2006. Changes in methods were adopted by the Board in January 2019 based on the experience study for the period July 1, 2013 to June 30, 2017. The asset smoothing method used to determine valuation assets was changed effective June 30, 2014.

Benefits valued are those delineated in Alaska state statutes as of the valuation date. Changes in state statutes effective after the valuation date are not taken into consideration in setting the assumptions and methods.

Actuarial Method

Entry Age Normal Cost.

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method.

Effective June 30, 2018, the Board adopted a layered UAAL amortization method: Layer #1 equals the sum of (i) the UAAL at June 30, 2018 based on the 2017 valuation, plus (ii) the FY18 experience gain/loss. Layer #1 is amortized over the remainder of the 25-year closed period that was originally established in 2014¹. Layer #2 equals the change in UAAL at June 30, 2018 due to the experience study and EGWP implementation. Layer #2 is amortized over a separate closed 25-year period starting in 2018. Future layers will be created each year based on the change in UAAL occurring that year, and will be amortized over separate closed 25-year periods. The UAAL amortization continues to be on a level percent of pay basis. State statutes allow the contribution rate to be determined on payroll for all members, defined benefit and defined contribution member payroll combined.

Projected pension and postemployment healthcare benefits were determined for all active members. Cost factors designed to produce annual costs as a constant percentage of each member's expected compensation in each year from the assumed entry age to the assumed retirement age were applied to the projected benefits to determine the normal cost (the portion of the total cost of the plan allocated to the current year under the method). The normal cost is determined by summing intermediate results for active members and determining an average normal cost rate which is then related to the total payroll of active members. The actuarial accrued liability for active members (the portion of the total cost of the plan allocated to prior years under the method) was determined as the excess of the actuarial present value of projected benefits over the actuarial present value of future normal costs.

The actuarial accrued liability for retired members and their beneficiaries currently receiving benefits, terminated vested members and disabled members not yet receiving benefits was determined as the actuarial present value of the benefits expected to be paid. No future normal costs are payable for these members.

The actuarial accrued liability under this method at any point in time is the theoretical amount of the fund that would have been accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date). The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of plan assets measured on the valuation date.

Under this method, experience gains or losses, i.e., decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.

¹ Layer #1 is referred to as "initial amount" in Section 1.2.

Valuation of Assets

The actuarial asset value was reinitialized to equal Fair Value of Assets as of June 30, 2014. Beginning in FY15, the asset value method recognizes 20% of the gain or loss each year, for a period of 5 years. All assets are valued at fair value. Assets are accounted for on an accrued basis and are taken directly from financial statements audited by KPMG LLP.

Changes in Methods Since the Prior Valuation

Prior to the June 30, 2018 valuation: (i) the total UAAL was amortized over the remainder of the 25-year closed period that was established in 2014; and (ii) the actuarial cost method for the retiree healthcare plan was on a level dollar basis (it is now on a level percent of pay method). There were no other changes in the asset or valuation methods since the prior valuation.

Valuation of Retiree Medical and Prescription Drug Benefits

This section outlines the detailed methodology used to develop the initial per capita claims cost rates for the TRS postemployment healthcare plan. Note that the methodology reflects the results of our annual experience rate update for the period from July 1, 2017 to June 30, 2018. Healthcare cost trend and retiree contribution increase assumptions for the period after June 30, 2018 were updated since the prior valuation.

Base claims cost rates are incurred healthcare costs expressed as a rate per member per year. Ideally, claims cost rates should be derived for each significant component of cost that can be expected to require differing projection assumptions or methods (i.e., medical claims, prescription drug claims, administrative costs, etc). Separate analysis is limited by the availability and historical credibility of cost and enrollment data for each component of cost. This valuation reflects non-prescription claims separated by Medicare status, including eligibility for free Part A coverage. Prescription costs are analyzed separately as in prior valuations. Administrative costs are assumed in the final per capita claims cost rates used for valuation purposes, as described below. Analysis to date on Medicare Part A coverage is limited since Part A claim data is not available by individual, nor is this status incorporated into historical claim data.

Benefits

Medical, prescription drug, dental, vision and audio coverage is provided through the AlaskaCare Retiree Health Plan and is available to employees of the State and subdivisions who meet retirement criteria based on the retirement plan tier in effect at their date of hire. Health plan provisions do not vary by retirement tier or age, except for Medicare coordination for those Medicare-eligible. Dental, vision and audio claims (DVA) are excluded from data analyzed for this valuation because those are retiree-pay all benefits where rates are assumed to be self-supporting. Buck relies upon rates set by a third-party for the DVA benefits. Buck reviewed historical rate-setting information and views contribution rate adjustments made are not unreasonable.

Administration and Data Sources

The plan was administered by Wells Fargo Insurance Services (acquired by HealthSmart, in January 2012) from July 1, 2009 through December 31, 2013 and by Aetna effective January 1, 2014.

Claims incurred for the period from July 2016 through June 2018 (FY17 through FY18) were provided by the State of Alaska from reports extracted from their data warehouse, which separated claims by Medicare status. In reviewing the claims reports generated for this year's valuation, it was discovered that audio and vision claims were incorrectly included in the reports that were provided for the prior year valuation. These audio and vision claims accounted for approximately \$9.9M in claims during fiscal 2017 (which was less than 2% of the total gross claims for that fiscal year). The claims for fiscal 2017 used in this year's claims cost development exclude the audio and vision claims that were incorrectly included in last year's development. Monthly enrollment data for the same period was provided by Aetna.

Aetna also provided census information identifying Medicare Part B only participants. These participants are identified when hospital claims are denied by Medicare; Aetna then flags that participant as a Part B only participant. Buck added newly identified participants to our list of Medicare Part B only participants. Buck assumes that once identified as Part B only, that participant remains in that status until we are notified otherwise.

Aetna provided a snapshot file as of July 1, 2018 of retirees and dependents that included a coverage level indicator. The monthly enrollment data includes dual coverage participants. These are participants whereby both the retiree and spouse are retirees from the State and both are reflected with Couple coverage in the enrollment. In this case, such a couple would show up as four members in the monthly enrollment (each would be both a retiree and a spouse). As a result, the snapshot census file was used to adjust the total member counts in the monthly enrollment reports to estimate that number of unique participants enrolled in coverage. Based on the snapshot files from the last two valuations, the total member count in the monthly enrollment reports needs to be reduced by approximately 13% to account for the number of participants with dual coverage.

Aetna does not provide separate experience by Medicare status in standard reporting so the special reports mentioned above from the data warehouse were used this year to obtain that information and incorporate it into the per capita rate development for each year of experience (with corresponding weights applied in the final per capita cost).

Methodology

Buck projected historical claim data to FY19 for retirees using the following summarized steps:

1. Develop historical annual incurred claim cost rates – an analysis of medical costs was completed based on claims information and enrollment data provided by the State of Alaska and Aetna for each year in the experience period of FY17 through FY18.
 - Costs for medical services and prescriptions were analyzed separately, and separate trend rates were developed to project expected future medical and prescription costs for the valuation year (e.g. from the experience period up through FY19).
 - Because the reports provided this year reflected incurred claims, no additional adjustment was needed to determine incurred claims to be used in the valuation.
 - An offset for costs expected to be reimbursed by Medicare was incorporated beginning at age 65. Alaska retirees who do not have 40 quarters of Medicare-covered compensation do not qualify for Medicare Part A coverage free of charge. This is a relatively small and closed group. Medicare was applied to State employment for all employees hired after March 31, 1986. For the “no-Part A” individuals who are required to enroll in Medicare Part B, the State is the primary payer for hospital bills and other Part A services. Claim experience is not available separately for participants with both Medicare Parts A and B and those with Part B only. For Medicare Part B only participants, a lower average claims cost was applied to retirees covered by both Medicare Part A and B vs. retirees covered only by Medicare Part B based upon manual rate models that estimate the Medicare covered proportion of medical costs. To the extent that no-Part A claims can be isolated and applied strictly to the appropriate closed group, actuarial accrued liability will be more accurate.
 - Based on census data received from Aetna, less than 1% of the current retiree population was identified as having coverage only under Medicare Part B. We assume that 5% of actives hired before 4/1/1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.
 - Based upon a reconciliation of valuation census data to the snapshot eligibility files provided by Aetna as of July 1, 2017, and July 1, 2018, Buck adjusted member counts used for duplicate records where participants have dual coverage; i.e. primary coverage as a retiree and secondary coverage as the covered spouse of another retiree. This is to reflect the total cost per distinct individual/member which is then applied to distinct members in the valuation census.

- Buck understands that pharmacy claims reported do not reflect rebates. Based upon reported rebates in proportion to incurred claims for State of Alaska retiree plans, Buck reduced reported pharmacy incurred claims by 12% to estimate the rebates for the retiree population. These estimates were based upon reported rebates for retirees from Aetna.
2. Develop estimated Retiree Drug Subsidy reimbursement - actual subsidy payments to the State were received for claims incurred during the 2009 through 2017 calendar years. Buck obtained this information based upon recorded and available information in the RDS Subsidy website and as provided by the State. The projected subsidy for FY19 was determined based on the historical ratio of subsidy received to claims incurred (adjusted for rebates), and then applied to the appropriate projection period. These amounts are applicable only to Medicare eligible participants.
 3. Adjust for claim fluctuation, anomalous experience, etc. – explicit adjustments are often made for anticipated large claims or other anomalous experience. Due to group size and demographics, we did not make any large claim adjustments. We do blend both Alaska plan-specific and national trend factors as described below. Buck compared data utilized to lag reports and quarterly plan experience presentations provided by the State and Aetna to assess accuracy and reasonableness of data.
 4. Trend all data points to the projection period – project prior years' experience forward to FY19 for retiree benefits on an incurred claim basis. Trend factors derived from historical Alaska-specific experience and national trend factors are shown in the table in item 5 below.
 5. Apply credibility to prior experience – adjust prior year's data by assigning weight to recent periods, as shown at the right of the table below. The Board approved a change in the weighting of experience periods beginning with the prior valuation as outlined below. Note also that we averaged projected plan costs using Alaska-specific trend factors and national trend factors, assigning 75% weight to Alaska-specific trends and 25% to national trends:

Alaska-Specific and National Average Weighted Trend from Experience Period to Valuation Year			
Experience Period	Medical	Prescription	Weighting Factors
FY17 to FY18	7.0% Pre-Medicare / 4.5% Medicare	6.2%	50%
FY18 to FY19	6.2% Pre-Medicare / 4.0% Medicare	8.0%	50%

Trend assumptions used for rate development are assessed annually and as additional/improved reporting becomes available, we will incorporate into rate development as appropriate. Based upon recent experience trending up, particularly for prescription drugs, the Board has approved our recommendation to update to the valuation healthcare cost trend assumption.

6. Develop separate administration costs – no adjustments were made for internal administrative costs. Third party retiree plan administration fees for FY19 are based upon total fees projected to 2019 by Segal based on actual FY2018 fees. The annual per participant per year administrative cost rate for medical and prescription benefits is \$300.

Healthcare Reform

Healthcare Reform legislation passed on March 23, 2010 included several provisions with potential implications for the State of Alaska Retiree Health Plan liability. Buck evaluated the impact of the following provisions.

Because the State plan is retiree-only, and was in effect at the time the legislation was enacted, not all provisions of the health reform legislation apply to the State plan. Unlimited lifetime benefits and dependent coverage to age 26 are two of these provisions. We reviewed the impact of including these provisions, but there was no decision made to adopt them, and no requirement to do so.

Because Transitional Reinsurance fees are only in effect until 2016, we excluded these for valuation purposes.

The Plan will be subject to the high cost plan excise tax (Cadillac tax). Based upon guidance available at the valuation date, Buck estimated the tax based upon a blended test of pre and post-Medicare projected costs and enrollment projections.

- A blended test compares a weighted average per capita cost (based upon proportions of pre/post Medicare eligible enrollments) to the tax cost thresholds in each projection year. Projected enrollment was based upon the current enrollment data provided by Aetna, and valuation headcount projections for future years.
- We included administrative fees and applied Retiree Drug Subsidy / EGWP reimbursements to the Medicare rates.

We assumed claim costs would increase according to valuation trend assumptions from the June 30, 2018 valuation, and that the tax cost thresholds would increase at 2.25% (the CPI assumption of 2.50% less 0.25% to estimate the impact of using the chained CPI as required by the Tax Cut and Jobs Act passed in December 2017). The first year increased at 3.25% to reflect the additional 1.0% over inflation assumption.

Buck determined the impact to be approximately \$31.6 million of the projected June 30, 2018 healthcare actuarial accrued liability for the defined benefit plan.

The Tax Cuts and Jobs Act passed in December 2017 included the elimination of the individual mandate penalty and changed the inflation measure for purposes of determining the limits for the High Cost Excise Tax to use chained CPI. It is our understanding the law does not directly impact other provisions of the ACA. While the nullification of the ACA's individual mandate penalty does not directly impact employer group health plans, it could contribute to the destabilization of the individual market and increase the number of uninsured. Such destabilization could translate to increased costs for employers. We have considered this when setting our healthcare cost trend assumptions and will continue to monitor this issue.

We have not identified any other specific provisions of healthcare reform or its potential repeal that would be expected to have a significant impact on the measured obligation. We will continue to monitor legislative activity.

Data

In accordance with actuarial standards, we note the following specific data sources and steps taken to value retiree medical benefits:

The Division of Retirement and Benefits provided pension valuation census data, which for people currently in receipt of healthcare benefits was supplemented by coverage data from the healthcare claims administrator (Aetna).

Certain adjustments and assumptions were made to prepare the data for valuation:

- Some records provided on the Aetna data were associated with a participant social security number not listed on the RIN-to-SSN translation file. We reconciled those participants with the pension valuation data as either a surviving spouse or a retiree in the appropriate plan based on account structure information in the Aetna data.
- All records provided with retiree medical coverage on the Aetna data were included in this valuation and we relied on the Aetna data as the source of medical coverage for current retirees and their dependents.
- Some records in the Aetna data were duplicates due to the dual coverage (i.e. coverage as a retiree and as a spouse of another retiree) allowed under the plan. Records were adjusted for these members so that each member was only valued once. Any additional value of the dual coverage (due to coordination of benefits) is small and reflected in the per capita costs.
- Covered children included in the Aetna data were valued until age 23, unless disabled. We assumed that those dependents over 23 were only eligible and valued due to being disabled.
- For individuals included in the pension data expecting a future pension, we valued health benefits starting at the same point that the pension benefit is assumed to start.

We are not aware of any other data issues that would be expected to have a material impact on the results and there are no unresolved matters related to the data.

The chart below shows the basis of setting the per capita claims cost assumption, which includes both PERS and TRS.

	Medical		Prescription Drugs (Rx)	
	Pre-Medicare	Medicare	Pre-Medicare	Medicare
A. Fiscal 2017				
1. Incurred Claims	\$ 230,671,216	\$ 66,265,130	\$ 64,442,324	\$ 160,756,912
2. Adjustments for Rx Rebates	0	0	(7,733,079)	(19,290,829)
3. Net incurred claims	\$ 230,671,216	\$ 66,265,130	\$ 56,709,245	\$ 141,466,082
4. Average Enrollment	23,342	38,502	23,342	38,502
5. Claim Cost Rate (3) / (4)	9,882	1,721	2,430	3,674
6. Trend to Fiscal 2019	1.136	1.087	1.147	1.147
7. Fiscal 2019 Incurred Cost Rate (5) x (6)	\$ 11,230	\$ 1,870	\$ 2,787	\$ 4,214

B. Fiscal 2018				
1. Incurred Claims	\$ 228,572,782	\$ 72,875,570	\$ 65,406,973	\$ 178,763,430
2. Adjustments for Rx Rebates	0	0	(7,848,837)	(21,451,612)
3. Net incurred claims	\$ 228,572,782	\$ 72,875,570	\$ 57,558,136	\$ 157,311,819
4. Average Enrollment	21,920	40,560	21,920	40,560
5. Claim Cost Rate (3) / (4)	10,428	1,797	2,626	3,878
6. Trend to Fiscal 2019	1.062	1.040	1.080	1.080
7. Fiscal 2019 Incurred Cost Rate (5) x (6)	\$ 11,074	\$ 1,869	\$ 2,836	\$ 4,189

	Medical		Prescription Drugs (Rx)	
	Pre-Medicare	Medicare	Pre-Medicare	Medicare
C. Incurred Cost Rate by Fiscal Year				
1. Fiscal 2017 A.(7)	11,230	1,870	2,787	4,214
2. Fiscal 2018 B.(7)	11,074	1,869	2,836	4,189

D. Weighting by Fiscal Year				
1. Fiscal 2017	50%	50%	50%	50%
2. Fiscal 2018	50%	50%	50%	50%

E. Fiscal 2019 Incurred Cost Rate				
1. Rate at Average Age C x D	\$ 11,152	\$ 1,870	\$ 2,811	\$ 4,201
2. Average Aging Factor	0.824	1.251	0.837	1.116
3. Rate at Age 65 (1) / (2)	\$ 13,535	\$ 1,494	\$ 3,360	\$ 3,764

**F. Development of Part A&B and Part B
Only Cost from Pooled Rate Above**

1. Part A&B Average Enrollment	40,223
2. Part B Only Average Enrollment	338
3. Total Medicare Average Enrollment B(4)	40,560
4. Cost ratio for those with Part B only to those with Parts A&B	3.180
5. Factor to determine cost for those with Parts A&B (2) / (3) x (4) + (1) / (3) x 1.00	1.018
6. Medicare per capita cost for all participants: E(3)	\$ 1,494
7. Cost for those eligible for Parts A&B: (6) / (5)	\$ 1,468
8. Cost for those eligible for Part B only: (7) x (4)	\$ 4,667

Following the development of total projected costs, a distribution of per capita claims cost was developed. This was accomplished by allocating total projected costs to the population census used in the valuation. The allocation was done separately for each of prescription drugs and medical costs for the Medicare eligible and pre-Medicare populations. The allocation weights were developed using participant counts by age and assumed morbidity and aging factors. Results were tested for reasonableness based on historical trend and external benchmarks for costs paid by Medicare.

Below are the results of this analysis:

**Distribution of Per Capita Claims Cost by Age
for the Period July 1, 2018 through June 30, 2019**

Age	Medical and Medicare Parts A & B	Medical and Medicare Part B Only	Prescription Drug	Medicare Retiree Drug Subsidy	Medicare EGWP Subsidy
45	\$ 8,260	\$ 8,260	\$ 2,053	\$ 0	\$ 0
50	9,346	9,346	2,438	0	0
55	10,574	10,574	2,896	0	0
60	11,963	11,963	3,119	0	0
65	1,468	4,667	3,764	527	1,039
70	1,701	5,410	4,155	582	1,147
75	1,972	6,272	4,588	642	1,266
80	2,178	6,925	4,474	626	1,235

Section 6.3: Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2018 valuation are described below. Unless noted otherwise, these assumptions were adopted by the Board in January 2019 based on the experience study for the period July 1, 2013 to June 30, 2017.

Investment Return

7.38% per year, net of investment expenses.

Salary Scale

Salary scale rates based upon the 2013-2017 actual experience (see Table 1).

Inflation – 2.50% per year.

Productivity – 0.25% per year.

Payroll Growth

2.75% per year (inflation + productivity).

Total Inflation

Total inflation as measured by the Consumer Price Index for urban and clerical workers for Anchorage is assumed to increase 2.50% annually.

Mortality (Pre-Termination)

Mortality rates based upon the 2013-2017 actual experience.

100% of RP-2014 white-collar employee table with MP-2017 generational improvement.

Mortality (Post-Termination)

Mortality rates based upon the 2013-2017 actual experience.

93% of male and 90% of female rates of RP-2014 white-collar healthy annuitant table with MP-2017 generational improvement.

Deaths are assumed to result from occupational causes 15% of the time.

Turnover

Based upon the 2013-2017 actual experience (see Table 2).

Disability

Incidence rates based upon the 2013-2017 actual experience (see Table 3).

Post-disability mortality in accordance with the RP-2014 disabled table with MP-2017 generational improvement. Deaths are assumed to be from non-occupational causes 85% of the time.

Retirement

Retirement rates based upon the 2013-2017 actual experience (see Table 4).

Deferred vested members are assumed to retire at their earliest unreduced retirement date.

The modified cash refund annuity is valued as a three-year certain and life annuity.

Spouse Age Difference

Males are assumed to be three years older than their wives. Females are assumed to be two years younger than husbands.

Percent Married for Pension

85% of male members and 75% of female members are assumed to be married at termination from active service.

Dependent Spouse Medical Coverage Election

Applies to members who do not have dual medical coverage. 65% of male members and 60% female members are assumed to be married and cover a dependent spouse.

Dependent Children

Benefits for dependent children have been valued only for members currently covering their dependent children. These benefits are only valued through the dependent children's age 23 (unless the child is disabled).

Contribution Refunds

0% of terminating members with vested benefits are assumed to have their contributions refunded. 100% of those with non-vested benefits are assumed to have their contributions refunded.

Imputed Data

Data changes from the prior year which are deemed to have an immaterial impact on liabilities and contribution rates are assumed to be correct in the current year's client data. Non-vested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage.

Active Rehire Assumption

The Normal Cost used for determining contribution rates and in the projections includes a rehire assumption to account for anticipated rehires. The Normal Cost shown in the report includes the following assumptions (which were developed based on the 5 years of rehire loss experience through June 30, 2017). For projections, these assumptions were assumed to grade to zero uniformly over a 20-year period:

- Pension: 15.57%
- Healthcare: 12.03%

Active Data Adjustment

To reflect participants who terminate employment before the valuation date and are subsequently rehired after the valuation date, participants who are listed as terminated in the June 30 census data file but active in the October 1 census data file are updated to active status as of June 30.

Alaska Cost-of-Living Adjustments (COLA)

Of those benefit recipients who are eligible for the Alaska COLA, 60% are assumed to remain in Alaska and receive the COLA.

Sick Leave

4.5 days of unused sick leave for each year of service are assumed to be available to be credited once the member is retired, terminates or dies.

Postretirement Pension Adjustment (PRPA)

50% and 75% of assumed inflation, or 1.25% and 1.875% respectively, is valued for the annual automatic PRPA as specified in the statute.

Expenses

The investment return assumption is net of investment expenses. The Normal Cost as of June 30, 2018 was increased by the following amounts for administrative expenses (for projections, the % increase was assumed to remain constant in future years):

- Pension: \$2,869,850
- Healthcare: \$1,651,600

Part-Time Status

Part-time employees are assumed to earn 0.75 years of credited service per year.

Re-Employment Option

All re-employed retirees are assumed to return to work under the Standard Option.

Service

Total credited service is provided by the State. This service is assumed to be the only service that should be used to calculate benefits. Additionally, the State provides claimed service (including Bureau of Indian Affairs Service). Claimed service is used for vesting and eligibility purposes as described in Section 6.1.

Final Average Earnings

Final Average Earnings is provided on the data for active members. This amount is used as a minimum in the calculation of the average earnings in the future.

Per Capita Claims Cost

Sample claims cost rates adjusted to age 65 for FY19 medical and prescription drugs are shown below:

	Medical	Prescription Drugs
Pre-Medicare	\$ 13,535	\$ 3,360
Medicare Parts A & B	\$ 1,468	\$ 3,764
Medicare Part B Only	\$ 4,667	\$ 3,764
Medicare Part D – RDS	N/A	\$ 527
Medicare Part D – EGWP	N/A	\$ 1,039

Members are assumed to attain Medicare eligibility at age 65. The EGWP cost shown above is for calendar year 2019. All other costs are for the 2019 fiscal year (July 1, 2018 – June 30, 2019).

The EGWP subsidy is assumed to increase in future years by the trend rates shown below. No future legislative changes or other events are anticipated to impact the EGWP subsidy. If any legislative or other changes occur in the future that impact the EGWP subsidy (which could either increase or decrease the plan's Actuarial Accrued Liability), those changes will be evaluated and quantified when they occur.

Third Party Administrator Fees

\$300 per person per year; assumed to increase at 4.5% per year.

Medicare Part B Only

We assume that 5% of actives hired before 4/1/1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.

Healthcare Cost Trend

The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 7.5% is applied to the FY19 pre-Medicare medical claims cost to get the FY20 medical claims cost.

Fiscal Year	Medical Pre-65	Medical Post-65	Prescription Drugs / EGWP	RDS
FY19	7.5%	5.5%	8.5%	4.7%
FY20	7.0%	5.4%	8.0%	4.7%
FY21	6.5%	5.4%	7.5%	4.6%
FY22	6.3%	5.4%	7.1%	4.6%
FY23	6.1%	5.4%	6.8%	4.6%
FY24	5.9%	5.4%	6.4%	4.6%
FY25	5.8%	5.4%	6.1%	4.6%
FY26	5.6%	5.4%	5.7%	4.6%
FY27-FY40	5.4%	5.4%	5.4%	4.5%
FY41	5.3%	5.3%	5.3%	4.5%
FY42	5.2%	5.2%	5.2%	4.5%
FY43	5.1%	5.1%	5.1%	4.5%
FY44	5.1%	5.1%	5.1%	4.5%
FY45	5.0%	5.0%	5.0%	4.5%
FY46	4.9%	4.9%	4.9%	4.5%
FY47	4.8%	4.8%	4.8%	4.5%

Fiscal Year	Medical Pre-65	Medical Post-65	Prescription Drugs / EGWP	RDS
FY48	4.7%	4.7%	4.7%	4.5%
FY49	4.6%	4.6%	4.6%	4.5%
FY50+	4.5%	4.5%	4.5%	4.5%

For the June 30, 2014 valuation and later, the updated Society of Actuaries' Healthcare Cost Trend Model is used to project medical and prescription drug costs. This model estimates trend amounts that are projected out for 80 years. The model has been populated with assumptions that are specific to the State of Alaska. The model was updated this year to use the newest version and incorporate recent trend survey information, which generated the updated trend rates shown above.

The table below shows the amount each trend rate shown on the previous pages was increased by to account for the Cadillac Tax:

Fiscal Year	Pre-65	Post-65	Fiscal Year	Pre-65	Post-65
FY18-FY30	0.00%	0.00%	FY70	0.21%	0.46%
FY31	0.00%	0.15%	FY71	0.21%	0.45%
FY32	0.00%	0.34%	FY72	0.20%	0.44%
FY33	0.00%	0.30%	FY73	0.20%	0.43%
FY34	0.00%	0.28%	FY74	0.20%	0.42%
FY35	0.00%	0.26%	FY75	0.19%	0.41%
FY36	0.00%	0.26%	FY76	0.19%	0.40%
FY37	0.00%	0.21%	FY77	0.18%	0.39%
FY38	0.10%	0.22%	FY78	0.18%	0.38%
FY39	0.09%	0.20%	FY79	0.17%	0.37%
FY40	0.08%	0.16%	FY80	0.17%	0.36%
FY41	0.07%	0.14%	FY81	0.17%	0.35%
FY42	0.06%	0.12%	FY82	0.16%	0.34%
FY43	0.04%	0.06%	FY83	0.16%	0.33%
FY44	0.04%	0.07%	FY84	0.15%	0.32%
FY45	0.04%	0.06%	FY85	0.15%	0.31%
FY46	0.03%	0.05%	FY86	0.15%	0.31%
FY47	0.04%	0.10%	FY87	0.14%	0.30%
FY48	0.04%	0.43%	FY88	0.14%	0.29%
FY49	0.05%	0.57%	FY89	0.14%	0.29%
FY50	0.05%	0.52%	FY90	0.13%	0.28%
FY51	0.06%	0.60%	FY91	0.13%	0.27%
FY52	0.06%	0.63%	FY92	0.13%	0.27%
FY53	0.07%	0.69%	FY93	0.13%	0.26%
FY54	0.10%	0.69%	FY94	0.12%	0.25%
FY55	0.30%	0.68%	FY95	0.12%	0.25%
FY56	0.30%	0.67%	FY96	0.12%	0.24%
FY57	0.29%	0.66%	FY97	0.11%	0.24%
FY58	0.29%	0.64%	FY98	0.11%	0.23%
FY59	0.28%	0.62%	FY99	0.11%	0.22%
FY60	0.27%	0.60%	FY00	0.11%	0.22%
FY61	0.27%	0.58%	FY01	0.10%	0.21%
FY62	0.26%	0.57%	FY02	0.10%	0.21%
FY63	0.25%	0.56%	FY03	0.10%	0.20%
FY64	0.25%	0.54%	FY04	0.10%	0.20%
FY65	0.24%	0.53%	FY05	0.10%	0.19%
FY66	0.24%	0.51%	FY06	0.09%	0.19%
FY67	0.23%	0.50%	FY07	0.09%	0.19%
FY68	0.23%	0.49%	FY08	0.09%	0.18%
FY69	0.22%	0.47%	FY09	0.09%	0.18%

Aging Factors

Age	Medical	Prescription Drugs
0 - 44	2.0%	4.5%
45 - 54	2.5%	3.5%
55 - 64	2.5%	1.5%
65 - 74	3.0%	2.0%
75 - 84	2.0%	-0.5%
85 - 95	0.3%	-2.5%
96+	0.0%	0.0%

Retired Member Contributions for Medical Benefits

Currently contributions are required for TRS members who are under age 60 and have less than 25 years of service. Eligible Tier 1 members are exempt from contribution requirements. Annual FY19 contributions based on monthly rates shown below for calendar 2018 and 2019 are assumed based on the coverage category for current retirees. The composite rate shown is used for current active and inactive members in Tier 2 who are assumed to retire prior to age 60 with less than 25 years of service and who are not disabled. For dependent children, we value 1/3 of the annual retiree contribution to estimate the per child rate based upon the assumed number of children in rates where children are covered.

Coverage Category	Calendar 2019 Annual Contribution	Calendar 2019 Monthly Contribution	Calendar 2018 Monthly Contribution
Retiree Only	\$ 9,876	\$ 823	\$ 823
Retiree and Spouse	\$ 19,764	\$ 1,647	\$ 1,647
Retiree and Child(ren)	\$ 13,956	\$ 1,163	\$ 1,163
Retiree and Family	\$ 23,844	\$ 1,987	\$ 1,987
Composite	\$ 14,676	\$ 1,223	\$ 1,223

Trend Rate for Retired Member Medical Contributions

The table below shows the rate used to project the retired member medical contributions from the shown fiscal year to the next fiscal year. For example, 7.6% is applied to the FY19 retired member medical contributions to get the FY20 retired member medical contributions.

Trend Assumptions	
FY19	7.6%
FY20	7.2%
FY21	6.8%
FY22	6.5%
FY23	6.3%
FY24	6.0%
FY25	5.9%
FY50	4.5%
FY100	4.5%

Graded trend rates for retired member medical contributions were updated to the rates shown above for the June 30, 2018 valuation to reflect the updated ultimate trend assumption of 4.5% used for gross cost components. Actual FY19 retired member medical contributions are reflected in the valuation.

Healthcare Participation

100% of system paid members and their spouses are assumed to elect healthcare benefits as soon as they are eligible. 20% of non-system paid members and their spouses are assumed to elect healthcare benefits as soon as they are eligible.

Changes in Assumptions Since the Prior Valuation

Effective for the June 30, 2018 valuation, the Board adopted changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience analysis performed on the population experience from July 1, 2013 to June 30, 2017. The changes in assumptions were adopted by the Board during the January 2019 Board meeting.

Table 1: Salary Scale

Years of Service	Percent Increase
0	6.75%
1	6.25
2	5.75
3	5.25
4	4.75
5	4.25
6	3.75
7	3.65
8	3.55
9	3.45
10	3.35
11	3.25
12	3.15
13	3.05
14	2.95
15	2.85
16+	2.75

Table 2: Turnover Rates**Select Rates during the First 8 Years of Employment**

Years of Service	Male	Female
0	20.4%	17.0%
1	20.4	17.0
2	16.8	14.0
3	14.4	12.0
4	12.0	10.0
5	10.8	9.0
6	9.0	7.5
7	7.2	6.0

Ultimate Rates after the First 8 Years of Employment

Age	Male	Female	Age	Male	Female
22	2.62%	3.79%	39	2.57%	3.74%
23	2.62	3.79	40	2.26	2.75
24	2.61	3.79	41	2.26	2.75
25	2.61	3.79	42	2.25	2.74
26	2.61	3.79	43	2.24	2.73
27	2.60	3.79	44	2.23	2.73
28	2.60	4.27	45	2.22	2.72
29	2.60	4.76	46	2.21	2.71
30	2.60	5.24	47	2.20	2.70
31	2.60	5.73	48	2.18	2.69
32	2.59	6.22	49	2.16	2.68
33	2.59	5.72	50	3.43	4.42
34	2.59	5.23	51	3.39	4.39
35	2.59	4.74	52	3.35	4.36
36	2.58	4.25	53	3.30	4.32
37	2.58	3.75	54	3.00	7.56
38	2.58	3.75	55+	2.00	5.00

Table 3: Disability Rates

Age	Male	Female
< 31	0.0337%	0.0612%
31	0.0337	0.0613
32	0.0337	0.0613
33	0.0342	0.0622
34	0.0347	0.0631
35	0.0353	0.0641
36	0.0357	0.0650
37	0.0362	0.0659
38	0.0371	0.0674
39	0.0379	0.0689
40	0.0387	0.0703
41	0.0395	0.0718
42	0.0403	0.0733
43	0.0423	0.0770
44	0.0443	0.0806
45	0.0464	0.0843
46	0.0483	0.0879
47	0.0504	0.0916
48	0.0536	0.0975
49	0.0569	0.1034
50	0.0601	0.1093
51	0.0634	0.1152
52	0.0666	0.1211
53	0.0746	0.1356
54	0.0826	0.1501

Table 4: Retirement Rates

Age	Reduced		Unreduced	
	Male	Female	Male	Female
< 45	N/A	N/A	3.0%	3.0%
45	N/A	N/A	5.0	5.0
46	N/A	N/A	5.0	8.0
47	N/A	N/A	5.0	8.0
48	N/A	N/A	5.0	8.0
49	N/A	N/A	5.0	8.0
50	10.0%	10.0%	5.0	14.0
51	10.0	10.0	8.0	13.0
52	10.0	10.0	15.0	13.0
53	10.0	12.0	15.0	14.0
54	10.0	12.0	15.0	15.0
55	15.0	8.0	20.0	17.0
56	10.0	8.0	17.0	17.0
57	10.0	8.0	15.0	17.0
58	10.0	8.0	20.0	17.0
59	10.0	8.0	20.0	23.0
60	N/A	N/A	25.0	23.0
61	N/A	N/A	18.0	23.0
62	N/A	N/A	18.0	21.0
63	N/A	N/A	18.0	21.0
64	N/A	N/A	18.0	26.0
65	N/A	N/A	30.0	21.0
66	N/A	N/A	25.0	21.0
67	N/A	N/A	25.0	21.0
68	N/A	N/A	25.0	26.0
69	N/A	N/A	35.0	26.0
70	N/A	N/A	30.0	26.0
71	N/A	N/A	30.0	37.0
72	N/A	N/A	30.0	37.0
73	N/A	N/A	30.0	37.0
74	N/A	N/A	30.0	37.0
75 – 79	N/A	N/A	50.0	50.0
80+	N/A	N/A	100.0	100.0

Glossary of Terms

Actuarial Accrued Liability

Total accumulated cost to fund pension or postemployment benefits arising from service in all prior years.

Actuarial Cost Method

Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension or postemployment plan for a group of plan members to the years of service that give rise to that cost.

Actuarial Present Value of Projected Benefits

Amount which, together with future interest, is expected to be sufficient to pay all future benefits.

Actuarial Valuation

Study of probable amounts of future pension or postemployment benefits and the necessary amount of contributions to fund those benefits.

Actuary

Person who performs mathematical calculations pertaining to pension and insurance benefits based on specific procedures and assumptions.

Annual Required Contribution (ARC)

Disclosure measure of annual pension or postretirement benefit cost under GASB 25, 27, 43 and 45.

GASB 25 and 27

Governmental Accounting Standards Board Statement Number 25, which specifies how the ARC was to have been calculated, and Number 27, which specifies Employer reporting of Pension Cost.

GASB 43 and 45

Governmental Accounting Standards Board Statement Number 43, which specifies how the ARC is to be calculated, and Number 45, which specifies Employer reporting of Other Postemployment Benefit (OPEB) Cost.

GASB 67 and 68

Governmental Accounting Standards Board Statement Number 67 amends Number 25 effective for the fiscal year beginning after June 15, 2013, and defines new financial reporting requirements for public pension plans. Governmental Accounting Standards Board Statement Number 68 amends Number 27 effective for fiscal years beginning after June 15, 2014 and defines new accounting and financial reporting requirements for employers sponsoring public pension plans.

GASB 74 and 75

Governmental Accounting Standards Board Statement Number 74 amends Number 43 effective for the fiscal year beginning after June 15, 2016, and defines new financial reporting requirements for public postemployment benefit plans. Governmental Accounting Standards Board Statement Number 75 amends Number 45 effective for fiscal years beginning after June 15, 2017, and defines new accounting and financial reporting requirements for employers sponsoring public postemployment benefit plans.

Liquidity Factor

Is calculated as the average annual Fair Value of Assets divided by the total annual benefit payments. This measures the approximate number of years that assets will cover benefit payments without contributions or investment return. Trend shows solvency risk.

Maturity Ratio

The ratio of the actuarial accrued liability for members who are no longer active to the total actuarial accrued liability. A ratio of over 50% indicates a mature plan. The higher the maturity ratio, the more volatile the contribution rate will be from year to year given actuarial gains and losses.

Normal Cost

That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole.

Rate Payroll

Members' earnings used to determine contribution rates.

Unfunded Actuarial Accrued Liability (UAAL)

The portion of the actuarial accrued liability not offset by plan assets.

Valuation Payroll

Members' earnings used to determine Normal Cost and Actuarial Accrued Liability.

Vested Benefits

Benefits which are unconditionally guaranteed regardless of employment.